BEGINNING THIS ISSUE—

Building a CUSTOM

CAR CRAFT

The SHOW-HOW Magazine

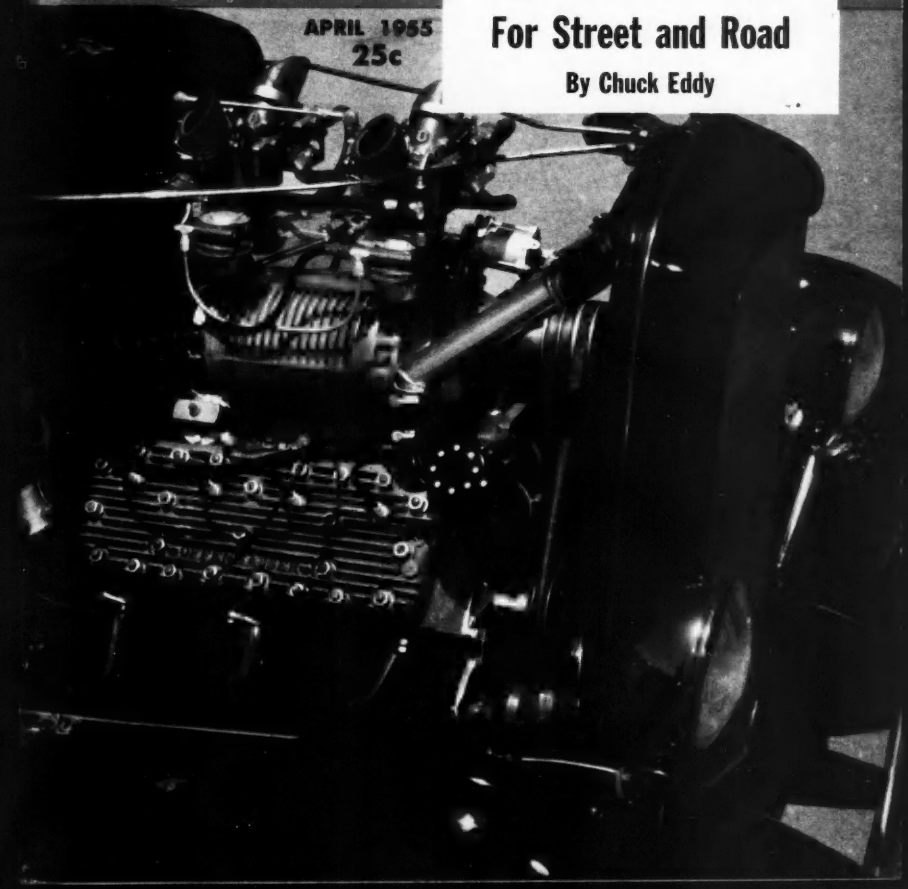
CUSTOM CARS • HOT RODS

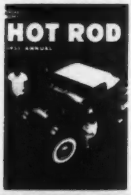
APRIL 1955
25c

SUPERCHARGING

For Street and Road

By Chuck Eddy





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CAR CRAFT

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CONTENTS

FEATURES

DEPARTMENTS

COVER

The interesting looking engine compartment on our cover belongs to a cute '32 Ford coupe owned by Don Alpenfels of Los Angeles, and it is quite appropriate, since the blown engine falls right in line with our feature story this month. It is the first part of a two part story and will show you how to get that so-so engine to really breathe deep and snort fire. Ektachrome by Tom Medley.

BENCH RACIN'

with Racer Brown

WITH TODAY'S cars and engines, great emphasis is placed on high advertised horsepower by the sales forces of nearly all automotive manufacturers. This results in great confusion and many questions when a car with an advertised horsepower rating of 150 or so, walks all over a car with a 250 horsepower rating, away from stop lights and on the highway. The answer to this dilemma is that horsepower, as such, is not a precise indication of a car's performance. Add to this the fact that there are presently no standards universally accepted by the automotive industry for arriving at advertised horsepower values and the natural conclusion is filled with conflicting statements and, worse yet, performance figures that don't jibe with the claims of sales people which, of course, makes for dissatisfied customers.

The emphasis on high horsepower has been greatly overstressed. Actually, torque output has much more significance than horsepower for the average performance-minded motorist, either on the road or on the drag strip. Engine designers realize this but they are faced with the problem of providing both good low and middle range torque and an ever increasing horsepower output. Their only practical recourse is to design engines with more piston displacement. It's been demonstrated all too often by the drive-in clan and others with modified street engines, that high power output at high engine speeds are obtainable, but the torque produced at low and medium speeds wouldn't pull the hat off your head. The actual time such an engine is at the peak power rpm on the street or highway is indeed a small percentage of the total, while it enters the maximum torque speed range almost every time the gears are shifted. It would make much better sense to lop off some of the horsepower and rpm at the top end and concentrate on increasing the torque output at low and mid range engine speeds. The average motorist also demands good torque in a stock automobile for low end acceleration and because torque is the principal factor in providing safe passing ability on the highway. So it seems that conscious or otherwise, everyone who drives a car is more or less dependent upon torque for their car's performance.

However, one problem remains unsolved. Torque and horsepower are intimately tied together because torque constitutes one of the basic factors of the horsepower equation. (Brake horsepower= $\frac{\text{pounds-feet of torque x rpm}}{5250}$). Consequently, any gain in torque in a given rpm range increases the horsepower in the same range. But torque output, by itself, is not dependent upon engine speed as is horsepower output. All this boils down to the fact that it is not necessarily easier but more sensible to concentrate on increasing torque (and horsepower) at a range in which the engine is more frequently used, than to direct one's efforts toward extracting lots of horsepower at an extreme engine speed and allowing the torque to fall where it may. Naturally, an engine that produces a high power output and is capable of high engine speeds has its uses, but these are usually limited (or should be) to competitive events where the high power and peak speed can be used to the best advantage. So, for what it is worth, any modifications and developments to increase torque should be carried out on engines to be used on the street, highway, drag strip or track. High torque output spells good acceleration and the accelerative qualities of any car make up the only real and most practical yardstick of determining performance.

And to this end, the only thing that's better than cubic inches is more of the same, or a blower, but then that's Chuck Eddy's story.

BRIEF AND TO THE POINT:

326 Words From The Editor

Here's where we kick off our newest do-it-yourself series, a complete step-by-step feature on Building a Custom. Not too long ago we brought forth the first of our popular how-to series—Building a Dragster—and the mail came pouring in. Next we presented a string of choice goodies on Building a Modified Stock, and more mail came rushing at us—enough to convince us that our readers are interested in doing things themselves. Our newest embarkation into the realm of the hammer and torch is designed to appeal to all the customizers. It'll contain detailed information on building a late model custom job covering eight separate phases in all. Introduction of the car is on page 34, while the initial "step" appears on page 38.

Chuck Eddy's scheduled Part II of Souping the '55 Ford and Merc has been waylaid and missed this issue. Seems that some highly important new technical data broke right at press time which affected the content of the story—Chuck says the delay will be well worth it, though. Meanwhile, don't overlook Eddy's reporting of important facts on Supercharging Your Everyday Street Job, page 10 this issue.

A little bragging on our part would be to mention the increase of features in ol' CC this issue. Somewhere—somehow, instead of our usual twelve or thirteen features, we've increased it to nineteen. Two of these are Racer Brown's Bench Racing Sessions and Chuck Eddy's new two pager "What's Your Problem?"

In last month's Style Report we offered a few ideas on what can be done with Olds taillights on late Fords. Many readers requested more info, so, starting on page 18 you'll find four different ways to fix 'em yourself.

Best way to get what *you* want in CAR CRAFT is to let us know your likes and dislikes. Here's hoping we'll be hearing from *you* . . .

THINGS TO COME

Next month's issue looks like a promising one. We'll have the second step on Building a Custom, which will feature *Capping the Hood*. Also incorporated in the story will be how to make the stock '52 Merc's fake airscoop into the genuine thing.

Chuck Eddy will be back with the conclusion to the Blower story. It will cover advance steps of supercharging, with a few bits of competition know-how thrown in.

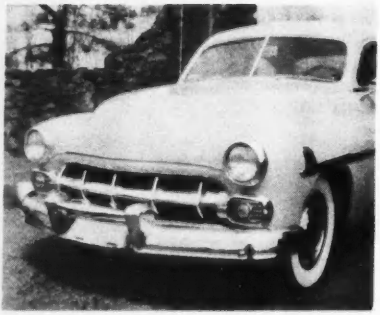
Torch Tips will be a follow-up for you Ford owners interested in going a step farther in restyling your taillights besides *just* sticking in the Oldsmobile taillight lenses—It will show you how to french the stock taillight rim. Anyway you look at it, we'll be loaded with goodies—See you then.

LETTERS

CHEV GRILLE

Dear Sirs:

Keep up the good work; I think your magazine is the greatest in the business. I especially like your articles on custom cars.



The enclosed picture shows my 1950 Merc with a reworked '54 Chevy grille, dual exhaust system, and skyblue paint job. I intend to rework back fenders and re-upholster the interior.

Very truly yours,
Don Jacobs
Easton, Penn.

CAD BOX TO OLDS

Dear Sirs:

Now I don't want to appear too critical of your magazine, but I picked your CAR CRAFT out of the newsstands *only* because the title concerning "Big Gears for Big Engines" struck my fancy as I was at the moment deciding on whether or not to run a stock Ford transmission with adaptor plate to my Olds 88 engine in a '32 Ford coupe. Now I generally am an avid fan of HOT ROD magazine (strictly speaking and only bought CAR CRAFT because I thought it would solve my problem—only to find you've been very brief on the subject, *i.e.*, how to put a Caddy stick shift in a '50 and later Olds OHV block. Don't forget there's (besides GMC) Olds and Caddy engines too. Now it would be the greatest thing for all concerned if you'd do a greater coverage on this subject sometime. We all are tired of replacing the delicate gears made by Henry Ford, so let's get started now and I'll enclose return letter with stamp and you explain *how* I'll put '37 or later Caddy on Olds 88 engine. For instance—to begin with, I have an engine of '50 vintage that came off a HydraMatic unit. We'll start from there and go step-by-step from the flywheel plus bell housing to the universal on "what parts to get." Okay?

I mean no hostility towards CAR CRAFT, but I'm only a "how-do-*you*-do-it" type of character and hope you'll understand.

Oh, yes, I find it cheaper to adapt a stock manual shift flywheel (Olds caliber) and 11-inch Ford truck clutch and pressure plate and adaptor plate to Ford stick shift, well anyway so far, but am willing to go into a little more expense and get a sturdy unit as you described, but left unfinished.

Thanks,
Sammy Thompson
Los Angeles, Calif.

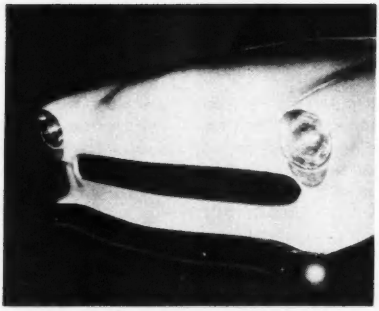
The Caddie box fits right to the Olds bell housing, no changes, no expense. Use the stock Olds stick shift flywheel and 11-inch

clutch. To adapt to pre-1949 Ford, use a '36 mount as described in the article. Have Cook Machine Shop on Anaheim-Telegraph road cut down the main shaft.—Ed.

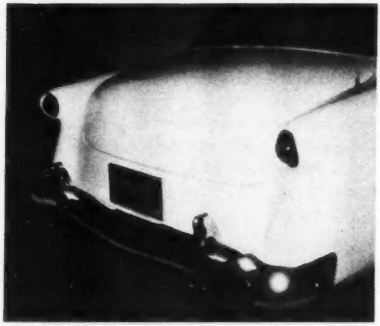
IDLERS OF OAKLAND

Dear Sirs:

Enclosed you will find pictures of my incompleted '52 Ford semi-custom (often said to look like a hungry whale). The work done thus far:



1. Headlights entirely hand-formed out of sheet metal (including the inner chrome rings).



2. Taillight lenses are '52 Olds 98 set in nightmarish frenched rims.

3. Grille opening is composed of two '54 Ford grille shells. Grille itself has not yet been decided upon.

4. Electric doors and trunk.

5. 2½-in. lowering all around.

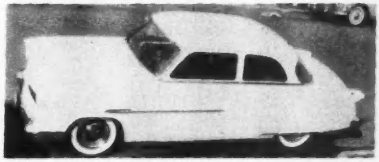
6. Very satisfying dual pipes and stock mill. The latter statement for those who always say, "You just gotta have a loaded mill in a 'look-wagon.'"

7. A conservative ivory white enamel paint job.

As soon as money is more available to me, a grille, rear end chrome strip and upholstery will be installed.

I'm a member of the "Idlers of Oakland" auto club, and even though we're a fairly new club, we've already bought welding tanks and equipment *with club money*. Many members have started work on their own cars and I believe the personal satisfaction of doing your own body work is something many custom car owners lack. Thus far, of course, we've kept to relatively simple work: my taillights, for example, being the first I've tackled.

I was just interested in showing you what could be done with a very limited fund (total body work excluding the paint job being around $200).



Your magazine around the club is considered the "Idler's Bible" and is looked forward to each month with eagerness. Much of the information given in your publication inspires many of the ideas of our members.

Respectfully yours,
August Ozolin
Oakland, Calif.

GMC BEARING TROUBLE

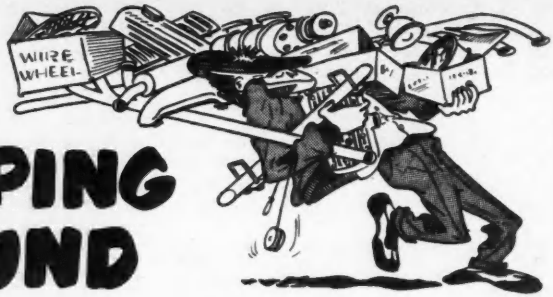
Dear Sirs:

I have just read your January '55 issue and would like to comment on the GMC article and the "Big Gears for Big Engines" articles.

In the spring of 1953 I was finishing a two-year course in Automotive Technology at Morrisville, in my native New York State. I had a 1948 Chev coupe with 302 engine, Packard O.D. transmission and Hotchkiss drive.

The engine was stock except for a 270 crankshaft and cam, and a planed head. Everything was completely checked, and genuine 302 bearings used on the 270 crank. I lost a rod bearing in less than 1000 miles of operation, and could never find any pos-

(*Continued on page 66*)



SHOPPING AROUND

REPAIR KIT

APEXY binding plastics, member of a new plastics family developed by Swiss scientists, are now available to householders and

car owners. First used by the Navy to repair burst pipes on board ships, it bonds to almost all materials, wood to metal, plastic to wood, tile, porcelain or ceramic to metal or wood—any combination. It is unsurpassed for caulking bathtubs and sinks since it is impervious to fresh or salt water and will not crack or chip off with time. It can also be used to repair auto body dents since it will bond fiberglass to metal. A quart size kit containing sufficient material for several jobs is now available for $4.95 postpaid. Kit includes plastic paste, resin, hardener and supply of fiberglass matte, fiberglass cloth and tape shown above. The manufacturer backs statements with a money back guarantee. Write Allied Products Engineering Co., 1225 East Grand Avenue, El Segundo, Calif.

ADJUSTABLE ROCKER ARMS

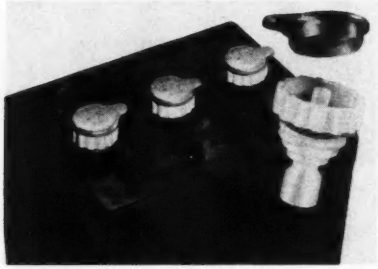
THE LATEST design in malleable iron adjustable rocker arms for '52-'55 Oldsmobile and '52-'54 Cadillac engines has been announced. The rocker arm adjusting screw is set on a slight angle to assure maximum mechanical advantages throughout full lift of the cam. Adjustment ease and longer

maintenance is claimed through the use of a hardened screw with a large area ball tip. Push rods used with these rocker arms must have socket ends. For full information on rocker arms and push rods, contact: Lyon Engineering, 11370 Long Beach Blvd., Lynwood, Calif.

THE OERLIKAP

FIRST BATTERY improvement in 20 years, the Oerlikap battery vent-cap is now being manufactured and marketed in the United States by American Oerlikon Company, under patent rights obtained from the world-famous Oerlikon industrial firm of Zurich, Switzerland. The Oerlikap is so constructed that it controls the battery electrolyte level and the battery simply cannot be overfilled. Any excess that does overflow is completely undiluted and thus harmless, eliminating any chance of battery corrosion or acid damage to car or battery. Further, the cap contains a battery water reservoir that

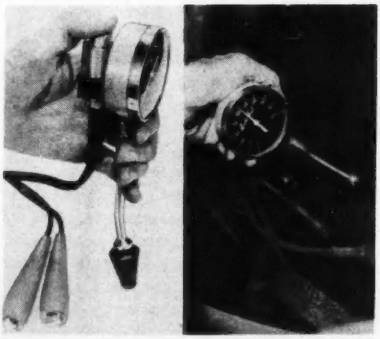
automatically meters needed water into the cell chamber as electrolyte is consumed. The Oerlikap is equipped with a polyethylene tab-lift cover that permits quick and accurate water-level check. This tab-lift cover only is removed for water inspection and since the water level is visible in the cap, it is a matter of seconds to see and determine whether water need be added. It is no longer necessary to hunt with a flashlight for the water level when checking a battery, nor do ordinary battery caps need be unscrewed and screwed. Further savings result from protection of battery plates and separators, and it also keeps



any foreign matter out of the battery. Oerlikap is no larger than any standard vent cap. Set of 3 sell for $1.00 (12 volt batteries require 2 sets) and these can be transferred from car to car. Write: American Oerlikon Company, c/o Oerlikap Dept. H, 819 North La Brea Ave., Los Angeles 46, Calif.

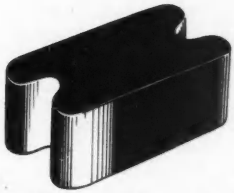
THE COMPRESS-AID

THE USE is simple: the spark plugs are removed from the engine to be tested, the wire leads of the Compress-Aid switch are attached to the starter solenoid and the rubber cone is then inserted firmly into the spark plug opening of the individual cylinders to prevent pressure leakage. By pressing the switch button the engine will turn over, bringing up the pressure in the cylinder being tested, eliminating the need for an assistant. The whole procedure is fast and easy, saving the car battery from unnecessary and prolonged current drain and providing accurate readings. The Compress-Aid can be operated with one hand. Attractively designed and priced at $8.95, the Compress-Aid just announced by Auto-Test, Inc., 600 S. Michigan Ave., Chicago 5, Illinois.



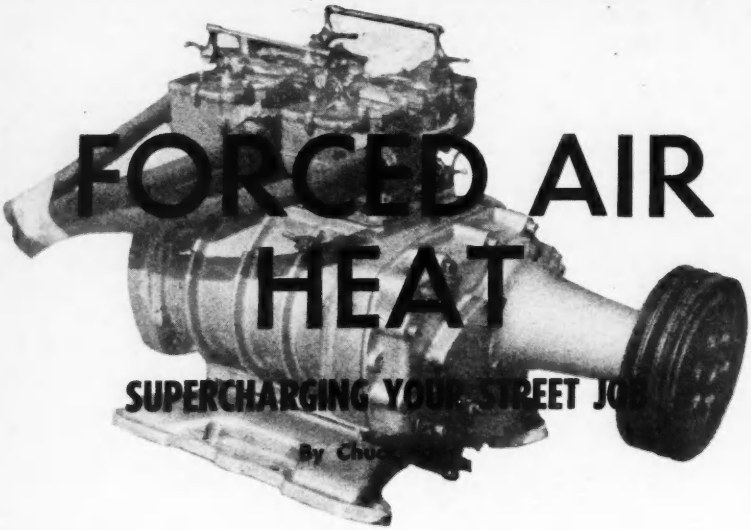
RUBBER COIL SPRING STABILIZERS

TWO MODELS of coil spring stabilizers designed to stabilize sagging coil springs in any car with coil spring suspension has been announced by the John Bean Division, Food Machinery and Chemical Corp., Lansing 4, Michigan. Both are made of live natural rubber. Mounted on the coil spring, the stabilizers make any car look and ride better. They eliminate sag caused by spring wear or by carrying heavy loads such as sample cases or



equipment. Steering is improved and tires wear longer. When a car sways or squeals on curves, rides roughly, if road noise is excessive or if the frame "bottoms" on bad bumps,

(*Continued on page 60*)



FORCED AIR HEAT

SUPERCHARGING YOUR STREET JO

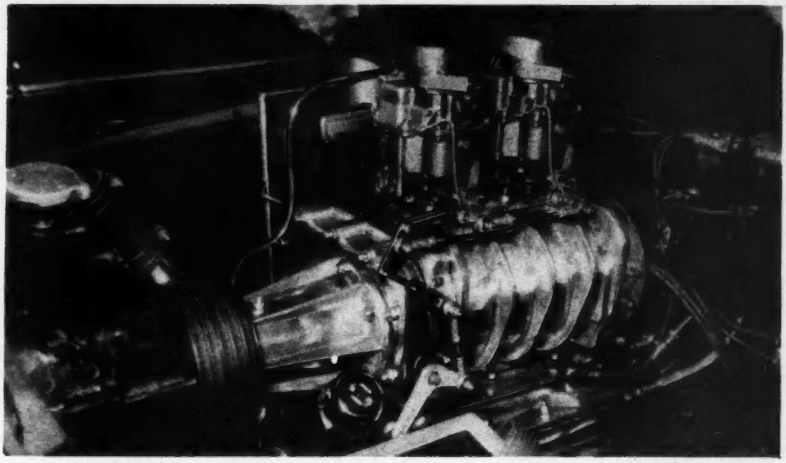
By Chuc

PART I

WHEN the enthusiast of things automotive has reached the final stages of the malady, his final desire may be to try supercharging his pride and joy. Believe me, if you have arrived at this stage, the disease is nearly incurable because the lure of a blown engine is, to most of us, a thing apart! It is our intention, in this opus, to outline the more conservative approach to supercharging, in a non-competition engine. This is not to give you the impression that we intend to overlook any avenues to increased performance, but rather that we will emphasize means of keeping some stamina and durability in the creation. In other words, we don't subscribe to the theory of Go or Blow, but Blow and Go!

A Little Theory

Let's go back to the theory of engine breathing to see why a supercharger *should* increase horsepower output. On the intake stroke, the piston's downward movement with the intake valve open, produces a pressure inside the cylinder which is *less* than atmospheric pressure. Therefore, air rushes into the engine from outside because of the *difference* in pressure. This idea of pressure differentials is a good one to express these events as it is one of the factors which determines an engine's output. We know that a *difference* of 19 to 21 inches of mercury (or 9 to 10.3 pounds per square inch) exists between sea level atmospheric pressure and the intake manifold pressure of an idling engine in good condition. If anything occurs to decrease this *difference in pressure*, at a given throttle opening, less mixture will flow into the engine and less power will result. All of us are aware that engines lose power at altitude (actually about 3½% for every 1000 feet) and the reason is simply that less difference in pressures exist to cause mixtures to flow into the engine. Any type of supercharging simply reverses this process and increases the pressure difference to cause *more* mixture to flow into the engine. Another way to express the air or mixture *pressure* is by *weight* of a given *volume*. Actually,



Converted GMC blower has been mounted on late-model Cad. Excellent planning is shown with easy operating throttle linkage and fabricated air cleaner to protect blower, engine.

the engine's total output is directly proportional to the weight of fuel it can burn in a given time. More fuel in less time equals more horsepower. Sounds simple, doesn't it? If you stop to think it through, you'll discover that every valid hop up gimmick in the book aims to increase the engine's ability to burn more fuel with more oxygen in a given time. If you want to stretch the point somewhat, nice, clean exhaust systems simply regain the pressure differential by eliminating back pressure. Here, though, we are dealing with pressure change improvements of a very few inches of mercury, so the gains are not spectacular. However, this should give you a hint that in order to force more in the front you have to let more out the back!

Types of Blowers

Superchargers normally used fall into three categories: 1. Positive displacement compressors of the Roots type. 2. Positive displacement compressors of the Vane type. 3. Centrifugal compressors. The Vane type of blower varies from the Roots type due to the fact that the gases are *compressed* within the housing as they are pumped through. The Roots type merely moves the gases

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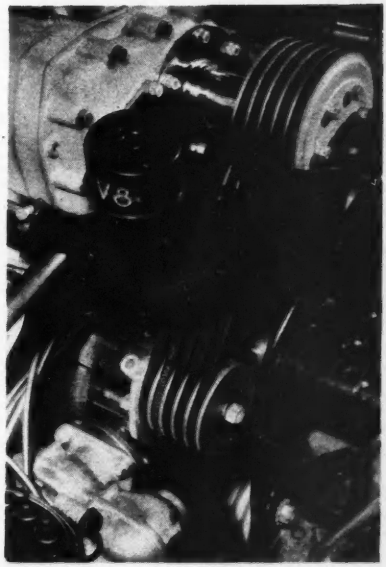
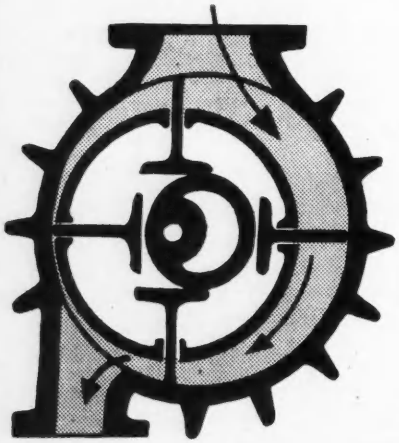
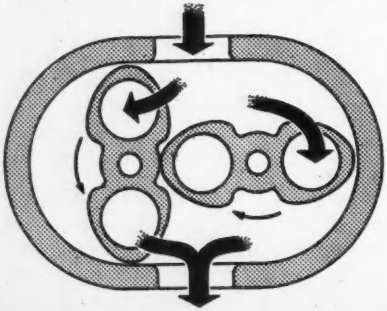


Bruce Crower used 6-71 GMC blower on his Chrysler, no room for ignition was left in stock position. Mag drive was fabricated to operate H & C mag from front of cam.

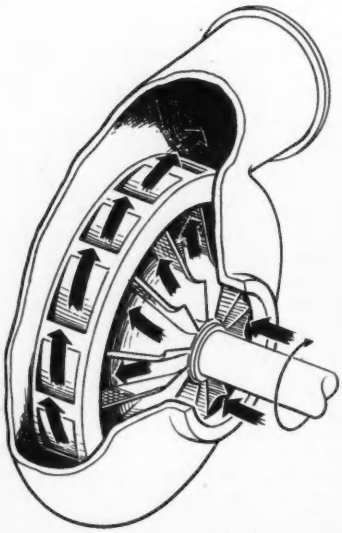
FORCED AIR HEAT continued

through without any internal compression. Pumping action occurs in the centrifugal types because the air is thrown outward against the blower housing by the impeller in its center, rotating at extremely high rpm. Each type has its advantages and limitations and should be carefully selected on the basis of its inherent characteristics. In the U.S., the Roots type is probably the most commonly used by the hot rod fraternity, with the McCulloch centrifugal the most common commercially installed unit. Expense is usually the determining factor as to which blower is selected and this has made the GMC-Diesel Roots the most sought after. More recently the McCulloch became popular, though the installed cost of the new unit runs well over $200. McCulloch largely eliminated the usual difficulty of the centrifugal type by employing a variable speed drive in which the impeller speed is varied by the manifold pressure of the engine. As the fixed drive ratio of the ordinary centrifugal type limits its useful boost pressures to the higher rpm ranges, the torque output of engine with this type is impaired at the lower end. As our ground rules for this installment are for modifications on a street job, we will limit our recommendations of the centrifugal blower to the McCulloch. However, even with the flexibility obtained through the use of an automatic variable drive speed, this unit begins to respond at a higher engine rpm than a comparable positive displacement blower. If we were discussing a Bonneville setup the recommendation might well be a fixed drive ratio centrifugal arranged so that the peak engine rpm would drive the impeller in its most efficient rpm range. You can begin to see the engineering involved

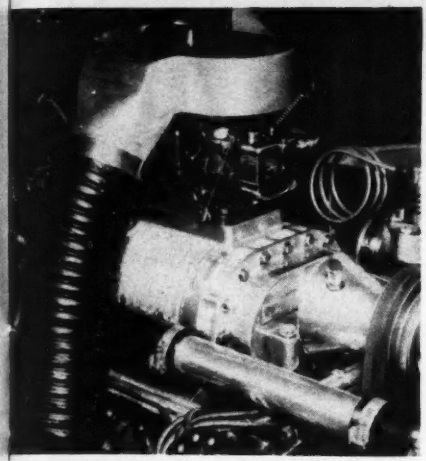




Vane-type blower, above, is positive displacement as is Roots-type blower, below.



Centrifugal blower picks up air at center, then spins it to outside centrifugally.



This S.C.O.T. blower installation on Ford is a perfect example of good workmanship. Fabricated air manifold has flex hose leading to cleaner in handier location.

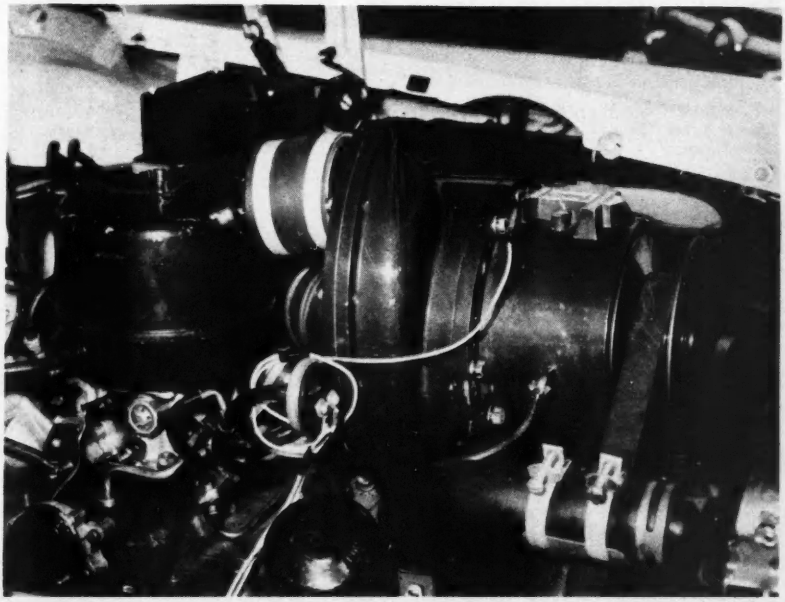
just to obtain the proper drive speeds, alone.

Proponents of the positive displacement school are quick to point out that this type of blower matches engine *pumping characteristics* and can therefore be set up so that an almost constant *boost* pressure will be applied to the engine throughout its rpm range. This compromise therefore has respectable low end torque, but at the same time will still require careful matching of the blower displacement to engine size.

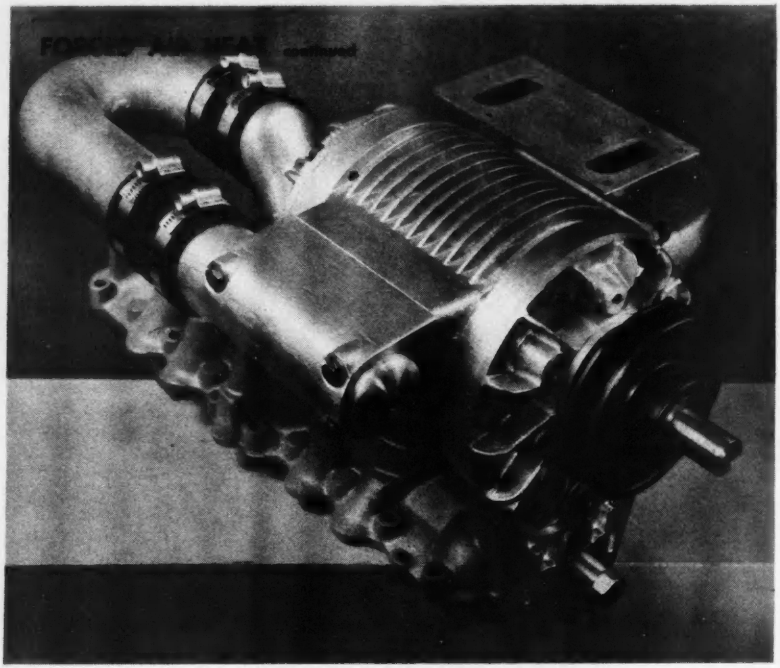
How Big?

If the blower is sold as a kit for a given engine, the size problem should have been worked out by the manufacturer. If the blower you intend to use is the centrifugal, size is not so important. However, if you contemplate using any of the adaptations of the GMC blowers, watch the size! 3-71, 4-71 and 6-71 Jimmies are available, with the 4-71 model having the most manifold adap-

(*Continued on next page*)



Compact McCulloch centrifugal blower has variable diameter driven pulley to vary impeller speeds. With this arrangement and spring-loaded idler, blower output fits engine demands.



Judson vane-type blower for Fords and Mercs pumps directly into manifold and uses two 97's or other three-bolt base carburetors. Capacity of Judson is engine of 280 inches.

tors available. Driven at crankshaft speed the 3-71 should be adequate for engine sizes up to 300 cubic inches. Above this, the Big Inchers will require the 4-71 at crank speed to blow them.

Installation Problems

Before you lay out that long green stuff for some of the heating system, you had better take a second look at the boiler room. Do you have enough hood clearance to cram the pump on top of, or beside the engine? Add to the head height requirement of the blower, the additional room for the carburetors and *their air cleaners*. We emphasize air cleaners because nothing will foul up a good blower quicker than a mouthful of dirt! Unless the internal clearances of your blower are opened up ridiculously wide, some of those "rocks" passing through will damage the rotors. Whether dirt particles actually cause interference or not, they will sandblast the interior of the blower. Besides, the engine doesn't like dirt any more than the blower. Refer to the picture showing the Cadillac blower installation for a neat solution to the laundry problem. A large air cleaner box was fabricated of sheet metal to mount at the right of the blower. The carb inlets are designed to afford maximum clearance, even with the not-so-short carburetors. Also beautifully executed is the throttle linkage arrangement. Notice that the lower bell crank has various hole locations with which the linkage ratios can be altered. Details like this contribute to an overall smoothness of operation that the haywire outfits will never approach.

After deciding whether you can get the pump under the hood, the next big problem to attack is how to drive the beast. Almost universally used are multiple narrow V belts on aluminum sheaves (pulleys).

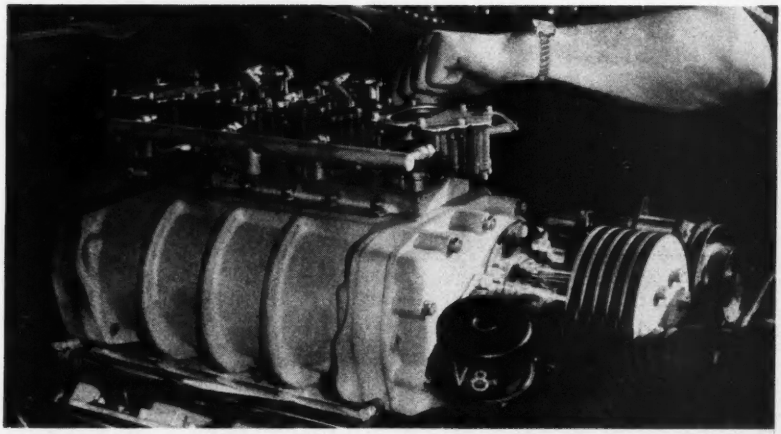
Normally, the crank pulley should be the same size as the blower pulley, if you have matched blower to engine size. Belts selected should be the very best obtainable, which come in matched lengths so that they will carry nearly equal loads. If care is used in machining the pulley groove diameters, you can set the job up to run without belt idler pulleys. The blower may require around 30 hp to drive it at maximum pulley diameters that clearances will allow.

Larger pulleys reduce belt loads, but increase the *linear* speed of the belt. As the normal operating linear speed of the belt is in the neighborhood of 10,000 feet per minute, pulley size should be kept under 7 inches diameter for a maximum engine rpm of 5000. As the GMC blowers are red-lined for 4400 rpm, operation above this speed may require increasing blower internal clearances to allow for rotor "growth." However, remember that we are still talking about a blower installation for a fairly docile engine and operation of the engine above 4400 rpm should be comparatively rare. If you are making a blower kit installation, these fine points will not be of concern to you as the drive system would have already been worked out for the specific engine. Indeed, we strongly recommend that your first experience wth a blown rig should be with a kit setup. There are many good reasons for this advice. First, any problem that exists relative to getting power out of a normally aspirated (unblown) engine is complicated when the supercharger is added. Second, the knowledge about tuning that experience with a normal engine gives is an absolute necessity when the complex carburetion and ignition characteristics of the "pump" jobs are encountered. So, unless you are a resourceful machinist with extensive facilities at your disposal, don't attack a full-dress "Kompressor" the first time out!

An interesting example of a built-from-scratch setup that really moves is Bruce Crower's Hustlin' Hudson. The five-belt drive system pulls a monster 6-71 GMC over pulleys which were cast in coffee cans, using old pistons as raw material! At every step of the way, the builder's ingenuity and ability are evident. The outboard support for the blower pulley is a welded and machined fabrication, while the blower inlet and discharge manifolds are beautifully welded sheet steel creations, finished in cadmium plate.

Nothing stops this boy in the makin' department and the ultimate proof is the way everything looks as if it was planted and grew in the engine room. However, we'll point out that this is an example that the "blower beginner" should look on as an ob-

(*Continued on page 62*)



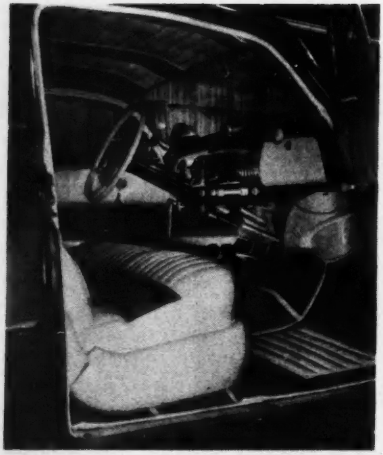
Crower's setup has four Dodge dual-throat carburetors but only center two normally operate at speeds up to 80 mph. Compound linkage actuates other two for maximum outputs.

FLATTENED FLEETLINE

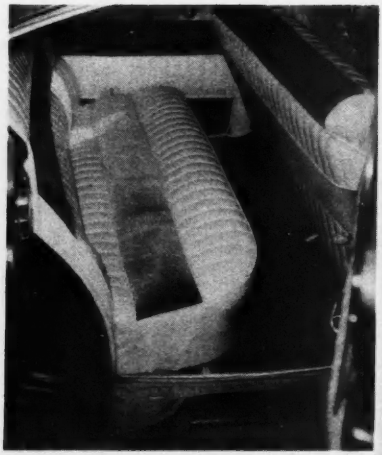
By Dick Day

Photos by Eric Rickman

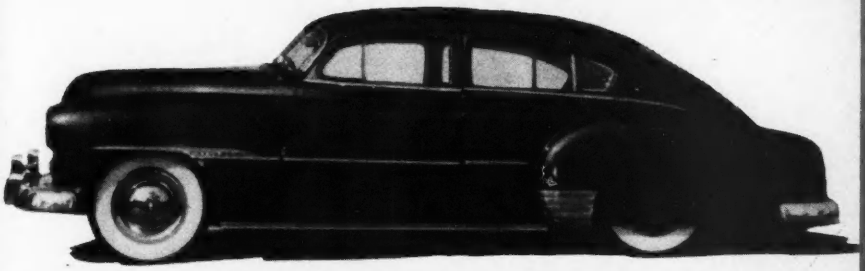
A FOUR DOOR Fleetline chopped . . . are you kidding?" That's what was running through owner Vince Ulloa's mind when trying to decide whether or not he wanted a chopped job. Up 'til now he had been content with just driving a nice clean conservative custom, but like all custom lovers who, at one time or another, get nipped by the chopping and sectioning bug, he fell prey. Kenny's Garage, located in Los Angeles, spent about four months in tedious work doing the face lifting job from conservative to radical. Gaylord's Upholstery Shop, in Lynwood, Calif., carried the ball from there and came through with one of the neatest combinations of frieze and Naugahyde rolled and pleated interiors we've seen in a long time. The great thing about Vince's custom Chevy is that for as long as he can remember he's always wanted to own a custom car that was really radical and outstanding . . . And, you know . . . he does!



Interior consists of deep tone gray frieze harmonizing with egg white Naugahyde pleats and rolls. Note the unusual and different roll and pleat design used on the seats.



When rear frame was C'd and undercarriage of body altered for clearance in the driveshaft tunnel, rear seats were also rebuilt with more slant and lowered a full 3 inches.



Top was lowered by chopping windshield and removing V-section from body just to the rear of back window in top quarter panel. Doors and trunk are push-button operated.

Hood has been peaked and corners rounded. A '51 Merc grille shell has been cut down and molded to front panels of body. A shortened '53 Dodge grille has been installed.

Vince retained his stock taillights, but positioned them 4 inches lower and frenched them into fender. Seams in body and front and rear splash pans are molded in.

Late Ford Taillights Restyled in 20 Minutes . . .

THE EASY WAY

By George Barris

LAST MONTH in "Style Report," we offered six variations of Oldsmobile taillight lenses installed in late Fords. Well, it must have made a hit with a good number of readers because of late, we have received a large amount of mail requesting some of the installations shown to be rehashed in a step-by-step procedure.

It seems that there are a good percentage of '52-'54 Ford owners eager to modify their stock Ford taillights; not in the sense of cutting and welding, but rather with a simple bolt on item. We agree, and as a matter of fact, several other members around the office have the same idea. Since the photo story has been completed and some of the staff have been let in on the simplicity of this alteration, several of them possessing late Fords have already made the change. The Olds lenses cost approximately five dollars per pair or . . . how cheap can we get?

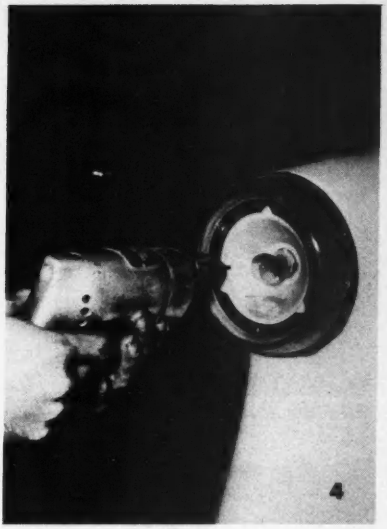
To go a step further, we'll follow through next month with a "Torch Tip" article on how to french in the taillight rim.

'50-'51 OLDS 98 LENS FOR '52 FORD

Remove the stock lens and the chrome rim.

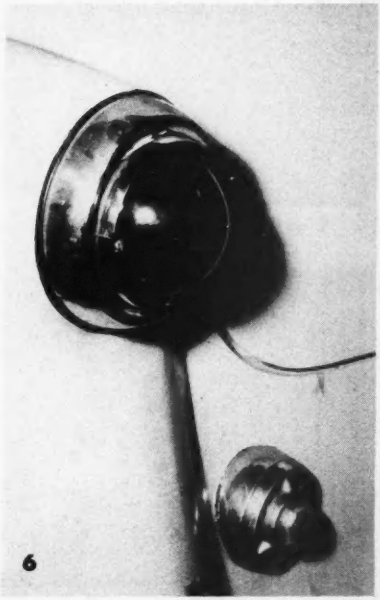
Reposition the stock chrome rim and install.

Insert Olds lens and mark off screw holes.



Drill 1/8" holes on both sides of bucket.

Now cautiously screw on the new Olds lens.



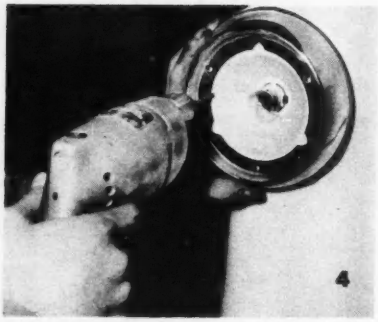
'50-'51 Olds lens and ring make snug fit.

'52 OLDS 98 LENS FOR '52 FORD

First step is to remove stock lens and rim.

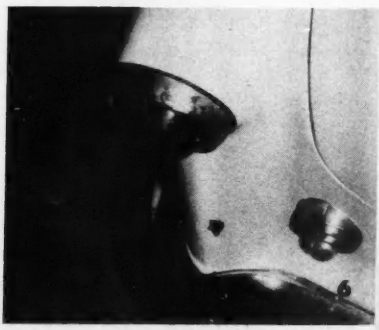
Now reinstall the stock outer chrome ring.

With scribe, mark off both screw holes.



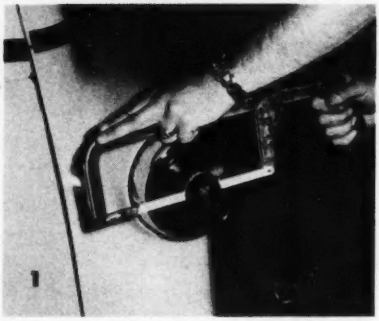
Drill 1/8" holes into the taillight bucket.

Using the stock gasket, reinstall lens.

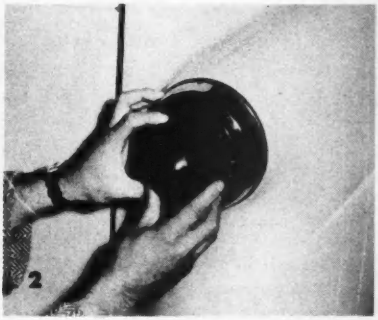


'52 Olds lens has simple, bubble type style.

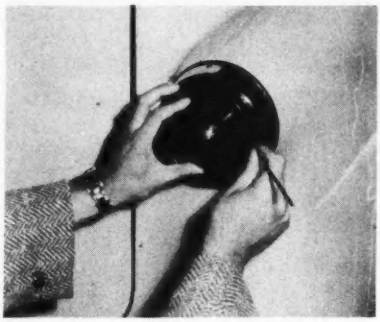
'52 OLDS 98 LENS FOR '53-'54 FORD



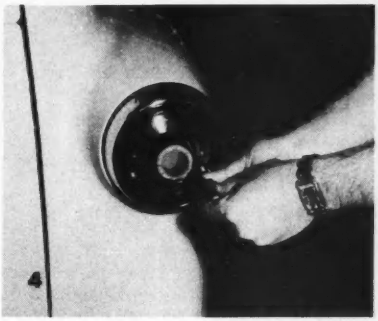
Cut center tip of the stock taillight off.



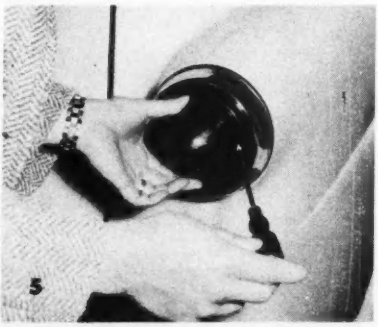
Align lens so that writing is horizontal.



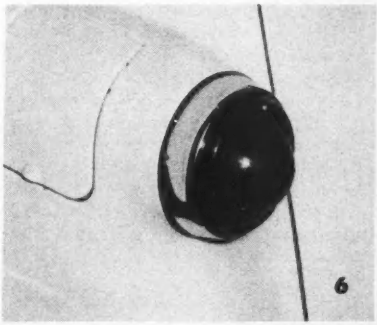
Mark off screw holes, then drill out 1/8".



Cautiously tap new holes with metal screws.



Now insert lens and screw on very carefully.



'52 Olds lens blends with Ford perfectly.

CONTINUED ON PAGE 65

TORCH TIPS

'54 MERC TAILLIGHTS FOR CHEVY

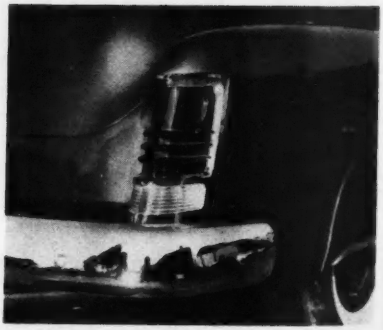
By Dick Day

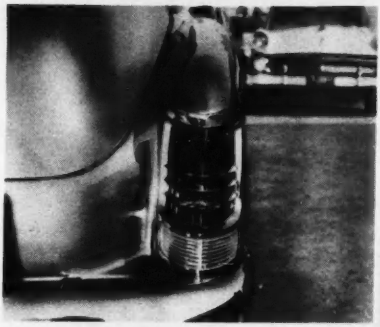
Photos by Tom Medley

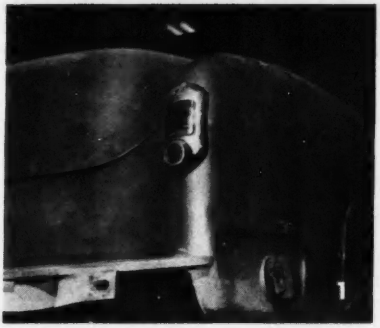
HOW MANY times have you looked at a customized car of a certain make and marveled at the improvement that has been wrought through the addition or grafting-on of another make of car's original equipment —like taillights, for example?

When we stopped at Cal's Body Shop to witness the installation of a pair of 1954 Mercury taillights into the rear fenders of Howard Schaller's '52 Chevy we were more than a little dubious as to the outcome. The lights looked as if they'd be too much for the Chev's fender area to accommodate. But when we stepped back to appraise the final result, after the job was completed, we were practically snapped from our shoes. The light units fits the fender lines perfectly, night driving safety was improved too, by the increased brilliance of the tail and stop lights, and the bonus to styling made us wonder "why didn't they do that in the first place?"

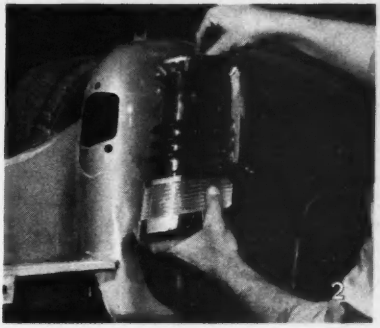
On first consideration the job may appear to be one involving many hours of work and calling for a lot of experience—actually it's very simple. Here, step by step, is an account of how it was done.



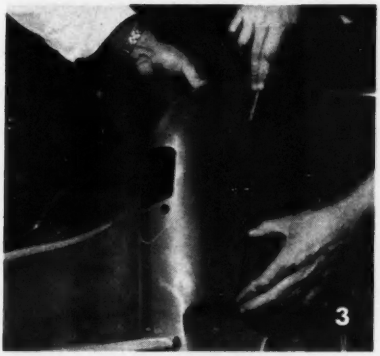




First remove the bumper and the stock taillight, making the working area accessible.

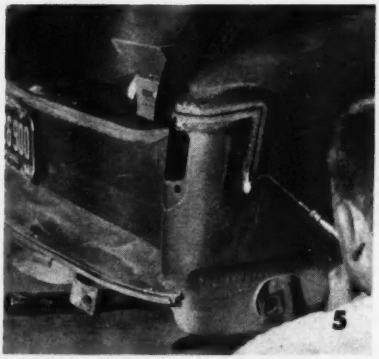


The '54 Mercury taillight is then placed next to the fender to determine position.

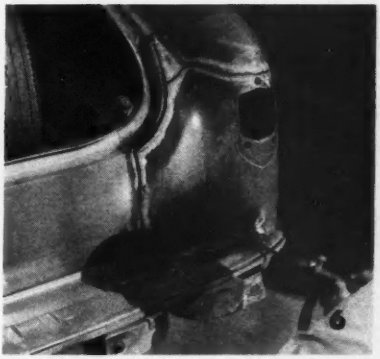


By using a flexible tape ruler for a straight edge, mark off side vertical guide line.

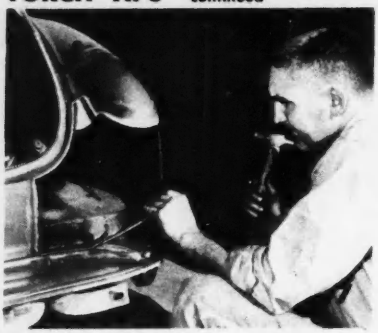
Also use the flexible ruler to mark off the taillight's position around tip of fender.



With a cutting torch, proceed to cut out the fender along the marked scribe lines.

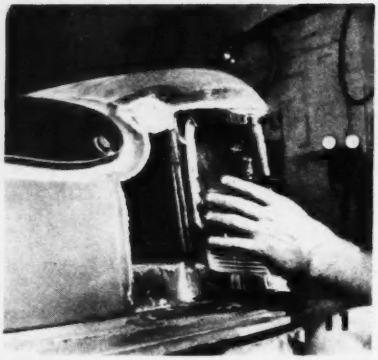


On the inner side of the fender, continue to cut away the opening as shown here.

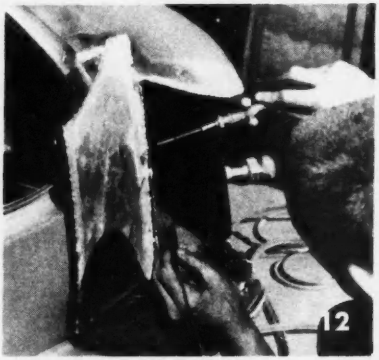


Where rear panel has been doubled under, you will have to chisel away welded seam.

Insert taillight to check on the opening's alignment. Trimming may be necessary.



Taillight is refitted, checking out the alignment with the new side brace and opening.



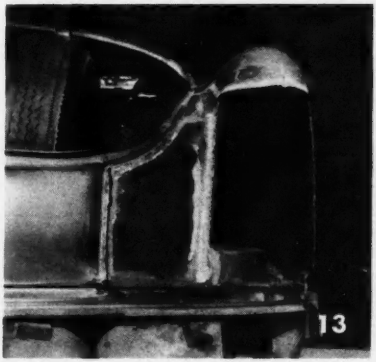
To fill the inner body panel opening, scrap sheet metal is tack welded into place.

On the bottom of Merc taillight, two small protrusions will have to be ground off.

The taillight is remounted again to check out alignment of the newly made perch.

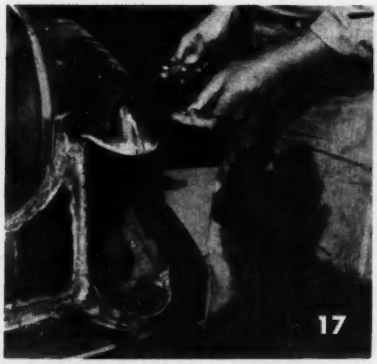
An inner upright brace is welded in, also fender valley will have to be recontoured.

Side brace had been welded to trunk flooring, small spacer added to fender valley.



Sheet metal is then cut to correct size with torch. Section is then welded solid.

At bottom of opening, a fill-in piece or perch will have to be added. (See step 16.)

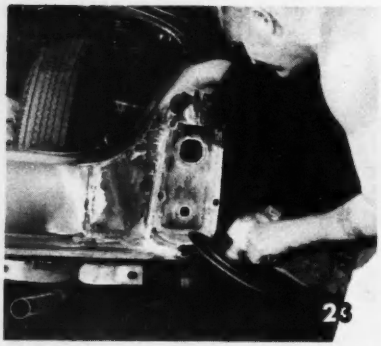


Tip of fender is cut and brought in to conform with the top contour of taillight.

On top of perch, weld and then trim small plate that comes with the taillight kit.

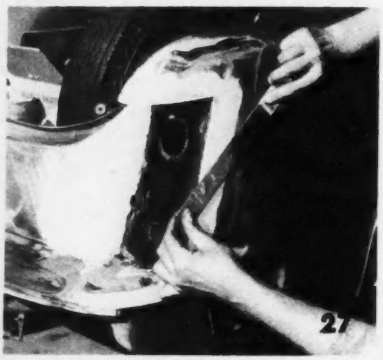
A backing plate is now welded in opening, enabling you to bolt on taillight unit.

Insert the taillight into its position and then mark off bolt holes for mounting.

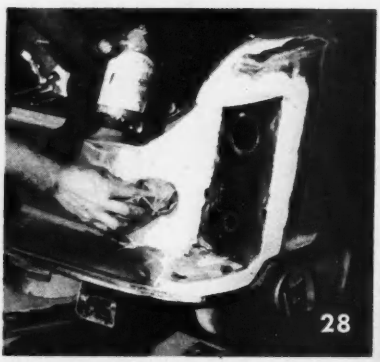


With an electric grinder set up with a 36 closed grit disc, grind all of working area.

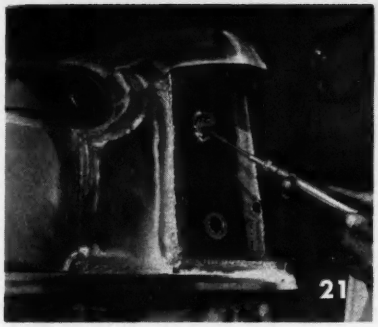
Next you will have to clean all weld beads thoroughly with a drill and rotary brush.



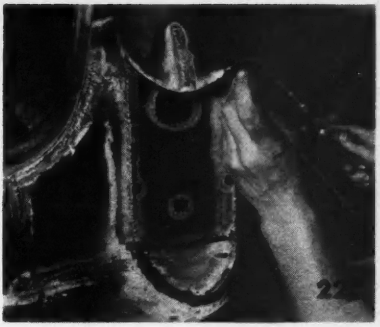
A vixen file is used next to hand file the surface to a smooth and finished contour.



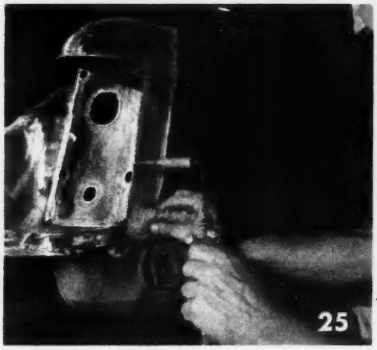
With clean cloth, wipe on Metal Prep, wipe off immediately, do not let dry on surface.



With a cutting torch, cut out the mounting hole and the two bulb and socket holes.

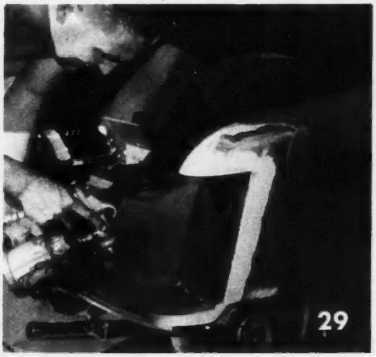


To dress up some of the edges, welding rod can be welded on, giving nice rolled edge.

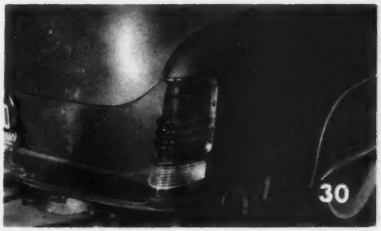


Tinning compound is next applied to working surface with steel wool pad and torch.

Using soft flame from torch, melt on lead and then smooth it out with wooden paddle.



Spray on primer. Block sand, feather edge surface with No. 220 wet or dry sandpaper.



Last step is to bolt on taillight and connect up wiring, then insert the bulb unit.

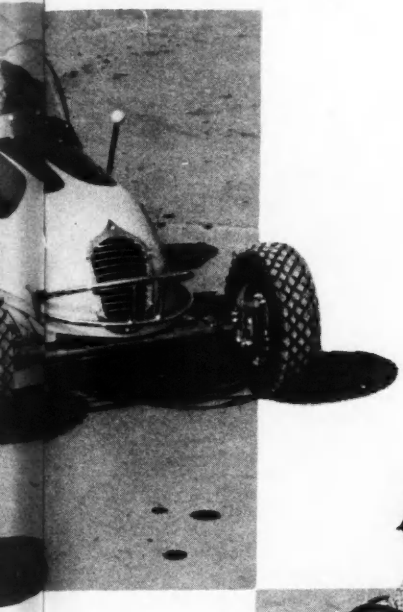
NEXT MONTH:
Frenching '52-'54 Ford Taillight Rims

THE ¼ ROADSTER

(PART II)

BUILDING THE CHASSIS

Photos by Bob D'Olivo

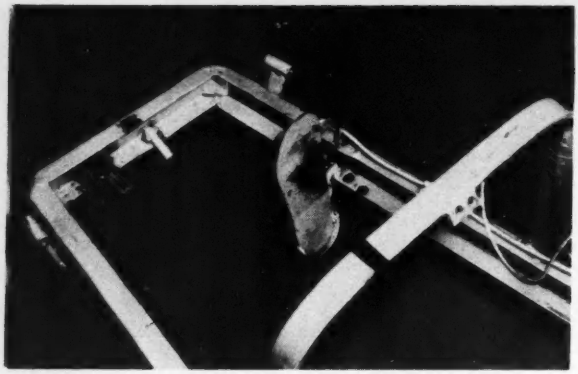


LAST MONTH, we started a two-part feature showing how almost any man on the block could become a genuine race car owner. The only things needed are a little extra money, a little mechanical ability and a *little chauffeur*. We promised some tips on building the car, so check the pictures and captions in this feature carefully to get your ideas.

The big secret behind the performance capabilities of these ¼ roadsters boils down to a few simple rules which even the king-size version at Indianapolis must follow to be successful. Number one is to keep the car

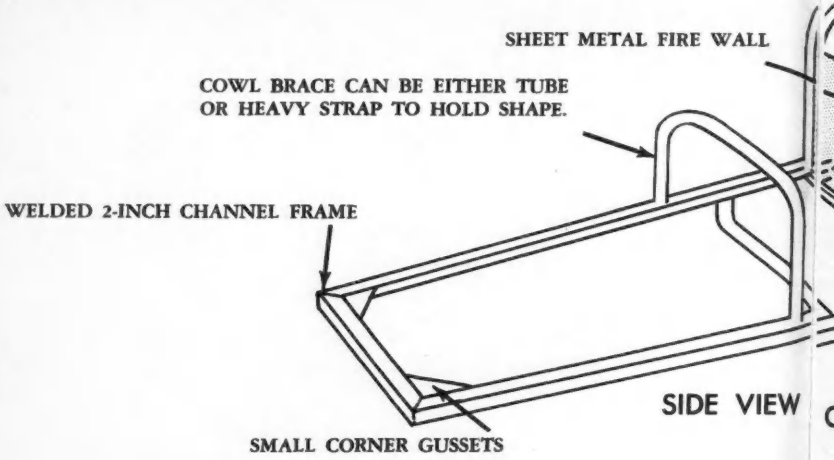
(*Continued on page 32*)

Photo on opposite page shows QRA president Doug Caruthers and the two lead-foots of the family: 4 year old Danny, left, and 9 year old Jimmy. The distaff side also gets into the act with 10-year-old Mary Ann Ubrun teamed with father Fran as chief mechanic, above. Mary wins more than her share, too.

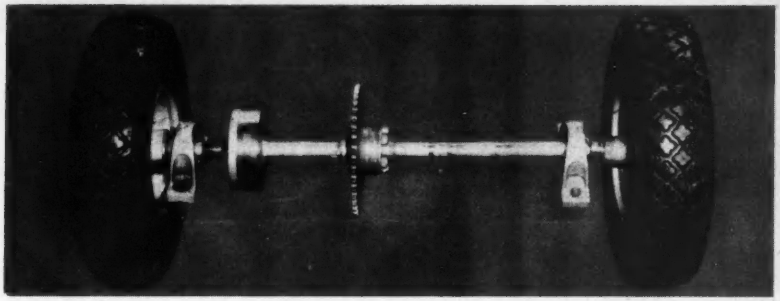


Front section of channel frame has brackets welded on sides for nerfing bars. Track-type pedal operates cycle brake cable through tube to carburetor linkage.

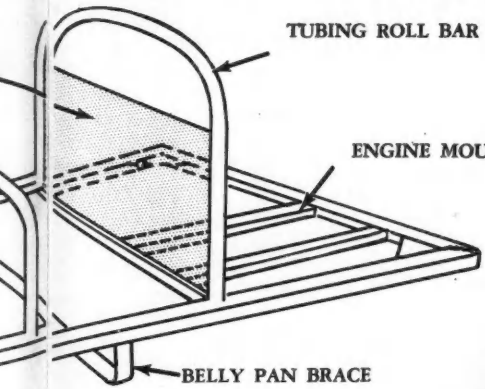
CHASSIS



Front axle in Caruthers' kit is fabricated from 1 inch O.D. tubing. Spindles are made from flat stock and ¾ inch cold roll round. Wheel bearings are part of commercial hub setup. Small spring leaves can be found on car such as a Crosley.



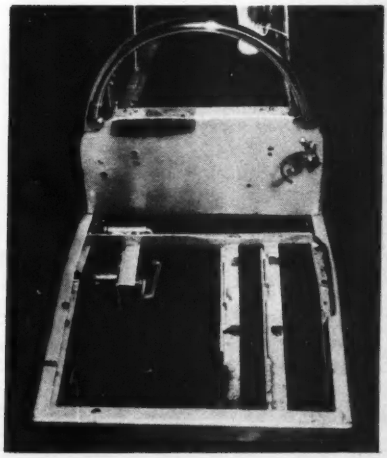
Rear axle is mounted solid to the frame by means of two Dodge pillow blocks with full floating ball bearings. Axle is 7/8 inch diameter with brake drum from motor scooter welded solid. The sprocket may be welded or a Dodge "taper-lock" type may be used. Only outside wheel is driven since two wheel drive makes car hard to handle on track with sharp turns.

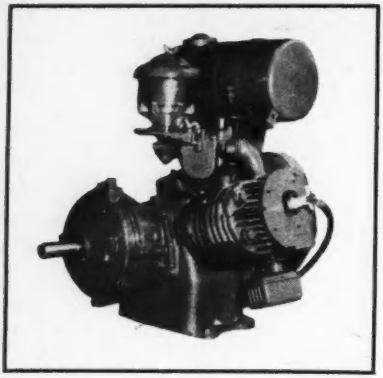


CONTINUED

OF FRAME

Rear view of frame shows simple construction methods which will still give ample strength. The two parallel engine mount members may be either channel or angle iron. Another rule in QRA stipulates that an all metal fire wall must be placed between the engine compartment and the driver. Bracket on left holds brake band and actuating linkage to operate brake.



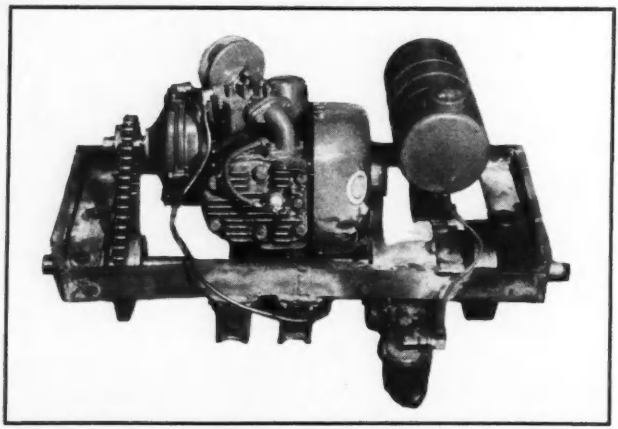


ENGINE INSTALLATION

(*Continued from page 29*)

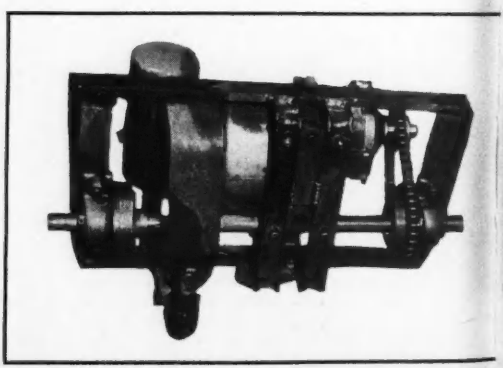
as light as possible without sacrificing strength. The weight to horsepower ratio is the big determining factor. After all, you are allowed only nine cubic inches in the engine, so even after thoroughly hopping it up, you won't ever be accused of joining the modern horsepower war. Simplicity is another key-

Continental engine used by most builders is one cylinder, nine cubic inches. Anything goes when hopping it up. Gear box on engine has a 6-1 reduction with no clutch.

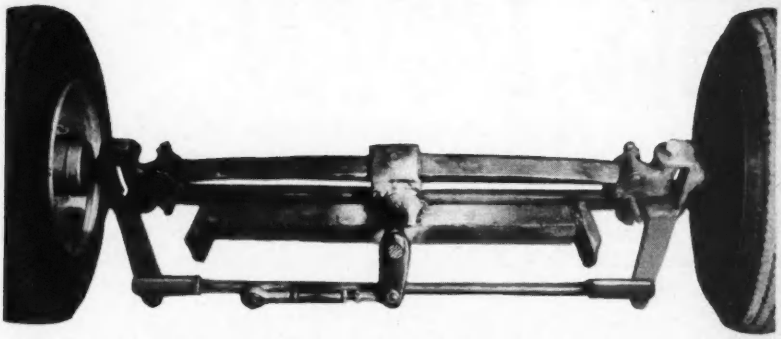


Typical engine mounting arrangement in car frame. Chain drive is direct with 2-1 reduction from gear box shaft to axle. Total reduction from engine to axle is 12-1. Fuel tank should be at least 8 inches from carburetor.

Bottom view of engine in frame: rear axle is fastened directly to frame by use of pillow blocks. Drive sprocket can be keyed to axle or a patented "taper-lock" type used without the keyway.



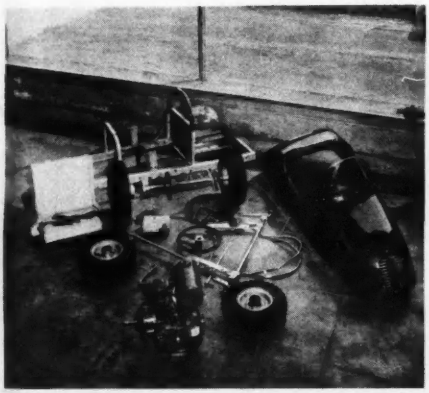
STEERING



Steering for these light cars need not be too fancy. Steering shaft has pitman arm welded to it and operates drag link made from diesel truck throttle linkage with spherical bearing ends. Tie rod is also of similar type with throttle linkage ends screwed on 1/2 inch rod.

note in construction, for although such things as a rack and pinion steering mechanism look authentic, in this case they are not nearly as effective or quick as a simple steering column with a pitman arm welded to it.

Doug Caruthers of 12257 Ball Road in Anaheim, California, president of the Quarter Roadster Association, markets a bolt-together car kit on a non-profit basis to encourage more similar organizations. The assembled kit makes a complete car, or you may buy any of the individual pieces you might need to help solve your problem. A second car kit is marketed by Lindley Body Shop at 15729 Atlantic Blvd., in Compton, Calif.



Complete kit by Doug Caruthers need only be bolted together and gassed up. Individual pieces are available if you build your own.

One of the two available kits is this one by Lindley's Body Shop. Body shell and the belly pan are fiberglass, fit frame snugly.

'The JAPAN'

BAIT . . . For "Building a Custom" Series

FOR A long time CAR CRAFT readers have been requesting a step-by-step feature on building a custom. Due to the numerous phases of the custom field, this was a tall order. It necessitated considering several important factors.

The car used for the story definitely had to be a year and model that is now popular with customizing groups. Also, one with a body style that would allow the step-by-step innovations to be switched to other years and models, or even other makes. Most important, of course, when completed it had to be outstanding, one that you or I would give our eye teeth to personally own or build.

With the cooperation of Barris Brothers Kustom Shop and the car's owner, Nobby Miyakawa, this '52 Mercury Monterey was chosen for the series. By accepting this year Merc, we succeeded in duplicating at least five other body styles: '53-'54 Mercs and '52-'53-'54 Fords. All the restyling ideas performed on the car have a fresh and different approach with none entailing major or difficult body work. To complete the car, approximately three and a half months were spent along with thirteen hundred dollars, eight hundred dollars of which was shop labor. It's easy to see what savings are in store for you

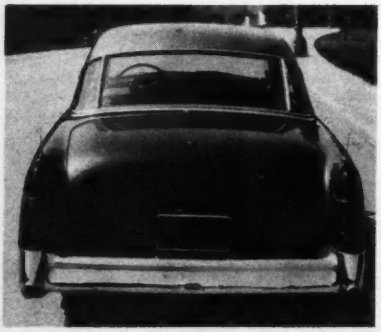
(Continued on page 36)

Photos by Tom Medley

From every view Nobby's Merc reflects well balanced styling. The grille treatment is the ultimate in simplicity yet very effective. Side trim is novel and enhances car by dividing the two-tone paint. Rear end offers clean, unobstructed lines and a unique taillight arrangement. The car is lowered 4 inches both front and rear.

The stock chrome bead at the top of the grille opening has been replaced with a ½-in. round rod, the center bar cleaned of trim and seven '52 Lincoln grille teeth added to the top and bottom. Lower bumper has been filled, painted and molded into the body.

Rear deck has all exterior trim removed. The rear bumper's bolt holes have been filled and brand name lettering removed.

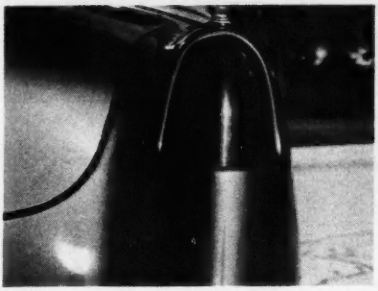


(*Continued from page 34*)

when building it yourself.

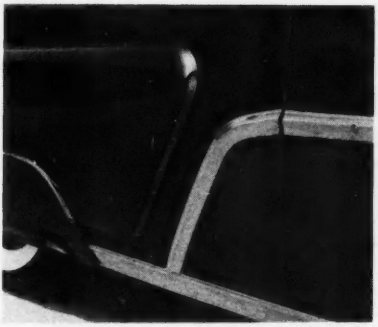
The monthly installments will cover, in a step-by-step manner, these listed features: frenching the headlights (page 38 in this issue), capping the hood or making the fake stock airscoop into the genuine thing, restyling grille and lower front bumper, redesigning taillights, removal of deck trim, building bumper tip exhaust, rear fender airscoops, filling in door handles and last but not least, installation of a full push button electrical system for the doors and trunk.

Well, for the next few months it looks like it'll be "Building a Custom" time around CC, so let's break out that old pair of scroungy Levis and assume the position . . . in the backyard of course!

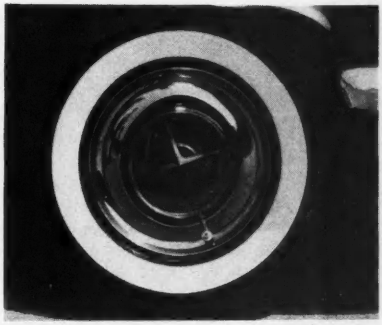


Stock taillights were removed. The new taillight housings were built out from fenders' stock bulkhead. Lenses are '51 Frazer.

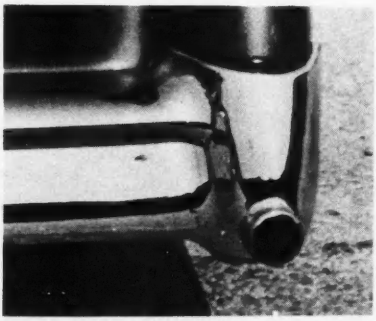
Headlights were frenched using the stock inner ring and outer rim. First part of series (page 38) deals with headlights.



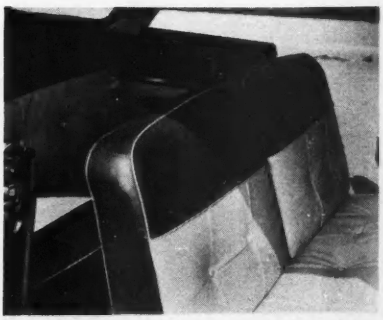
Small airscoops were built into the rear fenders. A light mesh chrome screen is fixed over the opening by small chromed screws.



Installed for wheel trim are '54 Chrysler hubcaps. Bolt-on exterior trim consists of twin radio aerials and side trim from Olds.



One of the most interesting stories of the series will be the step-by-step feature on building this bumper tip exhaust system.



Interior is not one of fancy rolls and pleats, but rather conservative upholstery, harmonizing with the two-tone color paint.

HERE'S HOW:

Building a Custom

FRENCHING THE HEADLIGHTS

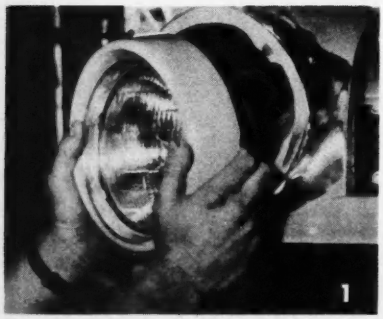
This Is the First of an Eight-Part Series

Photos by George Barris

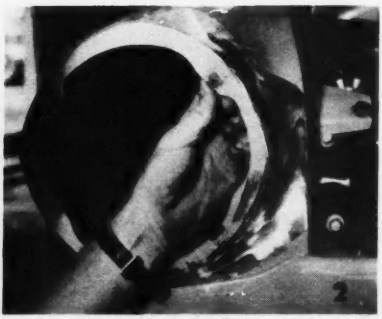
SINCE frenching late model headlight rims to fenders is a comparatively easy task, we think that this should make a good kicker for starting off Part I of the "Building a Custom" series.

The procedure of frenching the headlight rims on this '52 Merc is the same as that used to french any other make or model providing they possess similar styled rims or shaded headlights. For a custom shop to do this job, you should plan on picking up a tab ranging from twenty to twenty-five dollars.

Of course, in the backyard it's another story. The job will require the necessary body tools, spray gun and a spare weekend. But the next time someone asks you at the local drive-in, "Say, who did your body work?" a nonchalant reply could be heard, "I did!"



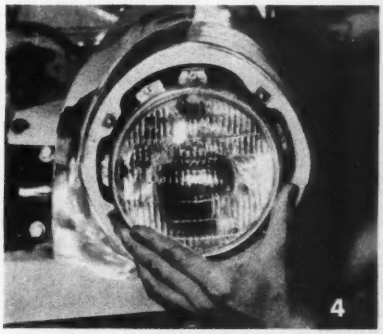
Remove rim and lens of headlight. Do not separate seal beam from headlight bucket.



The second step is to reverse all four of the headlight's small attachment clips.

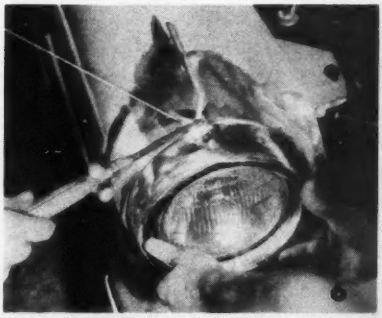
"THE JAPAN"

With a heavy flat dolly and a hammer, flatten out the edges of the seal beam bucket.

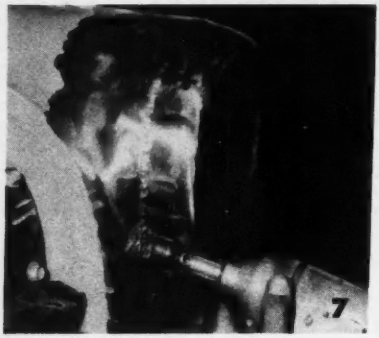


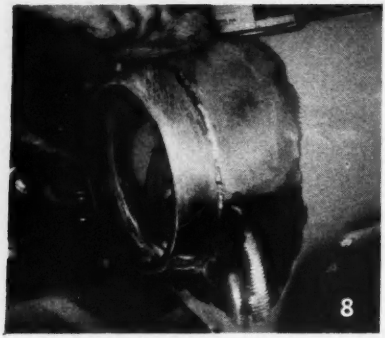
After edges are flattened out, insert the light unit checking alignment with the rim.

With a grinder set up with a 24 closed coat disc, grind paint from the fender and rim.



Install rim and inner ring and tack weld. Once secured, remove ring and weld solidly.





HERE'S HOW continued

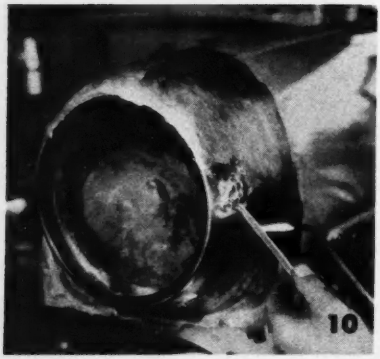
7
Grind area clean with grinder and thoroughly clean weld bead with rotary brush.

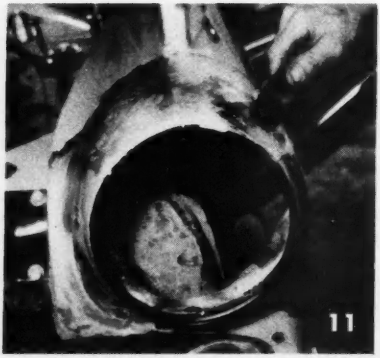
8
Tinning compound is now applied with a soft flame from torch and a steel wool pad.

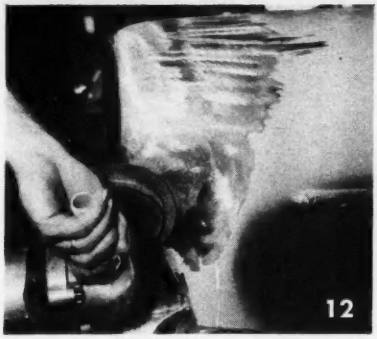
9
With a clean cloth and a soft flame, heat surface and wipe tinning compound clean.

10
Working only a small area at a time, melt stick lead onto the surface with the torch.

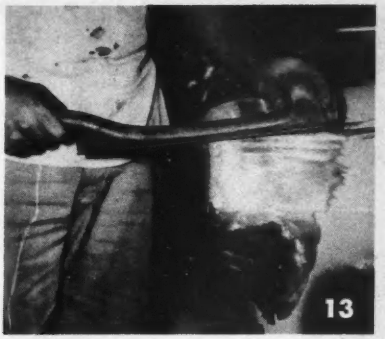
11
With wooden paddle and heat from a torch, lead is fused together and smoothed out.







12
The grinder is used once again, this time to smooth and contour the new fender tip.

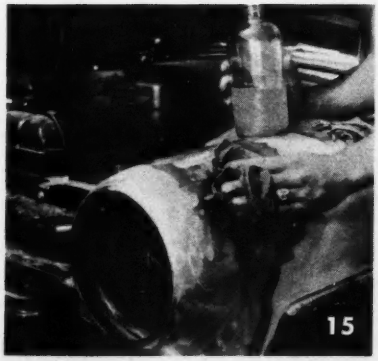


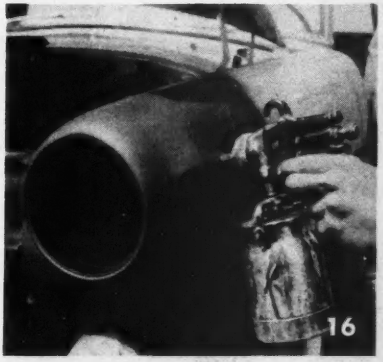
13
File surface from at least three different angles with vixen file for the best results.

14
The surface is now completely feather-edge sanded with 220 (wet or dry) sandpaper.

15
Area is thoroughly cleaned with metal prep. Wipe on and then wipe dry immediately.

16
Apply first primer coat lightly, allow to dry, then spray on second and third coat.

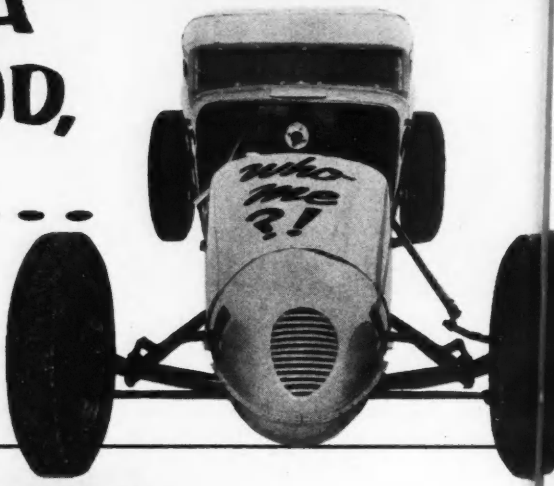


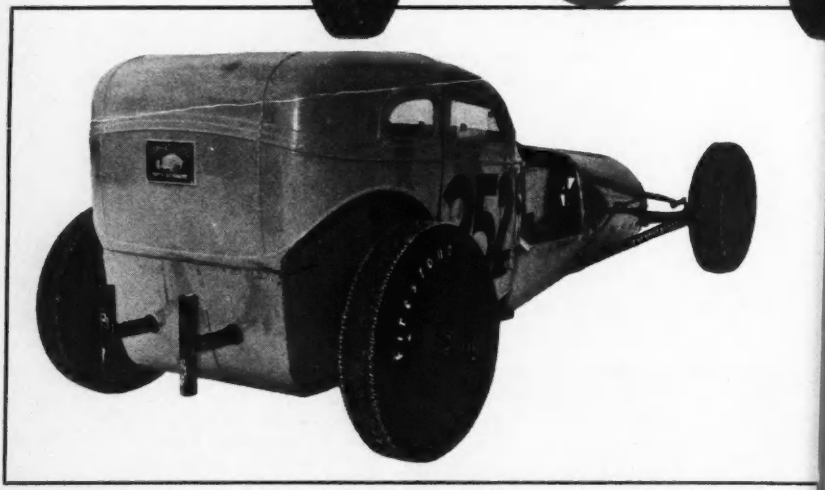


BUILD A HOT ROD, SON - - -

By Wally Parks

Photos by Pete

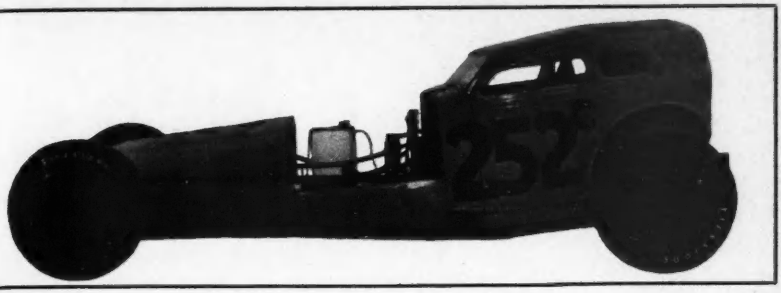




Austin sedan body was chopped 7½ inches, the windshield was reset at a 45 degree angle, rear window was filled in. Car's overall height is 4'8". The color? bright yellow.

SEVENTEEN seems like an early age to be building competition cars, but not for David Winters of Sacramento, California. Dave came about his automotive interests quite naturally—his dad, Horace Winters, was one of the real hot-footers on early-day race tracks and still throws a mean shift at the drags whenever the opportunity to thrash a gearbox presents itself. Encouragement from his dad and his uncle, Frank Miller, both members of the Asphalt Flyers, led David into the auto realm at the tender age of thirteen. He's been with it ever since.

The competition coupe shown on these pages was built in its entirety by David; welding, forming and all. His friend, Bill Lim-



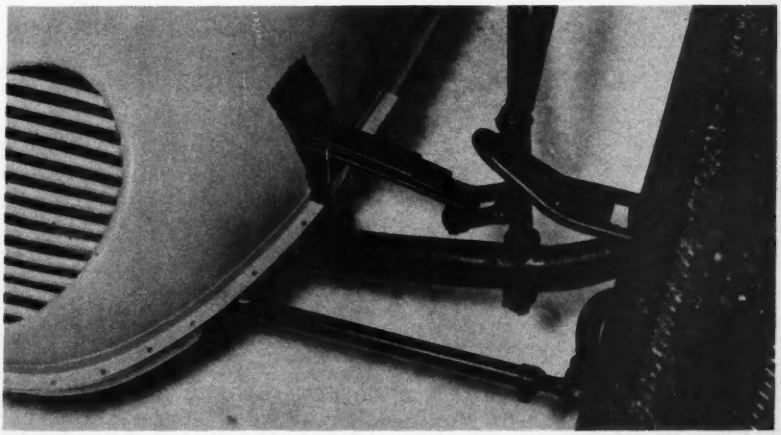
Nose section was made from front end of an aircraft drop tank. Full length belly-pan and hood were hand formed. Note how the engine sets well back of center in the chassis.

pach, supplied the design and his dad stood conveniently by to help him foot the over-all $500 expense for parts and materials. The objective was to build a car radical enough to compete against other all-out competition jobs, yet possessing the ultimate of safety factors in its construction. An outstanding feature of the car is the sturdy "squirrel cage" roll bar arrangement which completely surrounds the driver. Although running at the drags and at Bonneville speed trials poses little threat of a car's upsetting, Dave wanted the protection there "just in case."

The basic components of the car consist of an aluminum channel frame, an Austin '35 body, a long hand-fashioned metal nose and hood, and a $3\frac{3}{16}$" x $3\frac{3}{8}$" Mercury 59-L flathead engine with such goodies as 9.25 to 1 Edelbrock heads and multi-carb manifold, Silvolight pistons, 404 Iskenderian cam, 12-lb. aluminum button flywheel, Vertex magneto, and usual deep-breathing improvements.

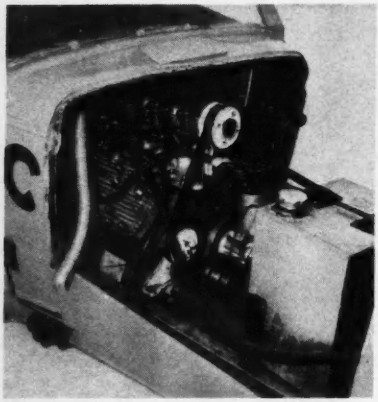
To gain every advantage for balance, handling and traction the engine was placed well back of center in the chassis and the driver's

(*Continued on page 45*)

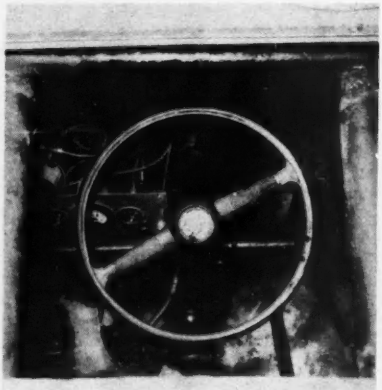


Simple front end assembly consists of 1937 Ford V8 60 tubular front axle, special home-fabricated steering arm, split radius rods, tie-rod mounted ahead of the front axle.

Sturdy "squirrel cage" roll bar, built of 2½ inch tubing, completely surrounds driver. Setback firewall seals off engine compartment. Rebuilt steering is from '24 Plymouth.



Frame rails are made of 4" x 2" aluminum channel. Crossmembers are of 3" seamless tubing. Homemade headers are "spaghetti" type, made of 2" flexible exhaust tubing.



Bird's-eye view of the driver's compartment shows purely functional interior. Gauges are oil pressure, tachometer, water temp. Total car weight, ready to run, 1400 lbs.

Who—Me?! continued

seat was located over the Cook quick-change rear end. The 120-inch wheelbase made it track in a straight line as if it were on rails. Suspension consisted of a leaf spring and '37 Ford 60 tube axle in front, with rigid unsprung suspension at the rear.

At Bonneville last year, where the car made its debut, a tune-up run at 129 mph ended up as its best effort, thanks to the downpour that washed out the last days of the meet. In a later run at Kingdon drag strip, about the time the 286 cu. in. mill was beginning to show its stuff a rod let go and went that-a-way . . . But David Winters isn't one to remain out of the running long; he's already converting the car into a full-fledged dragster with fiberglass body, rear-mounted driver's seat and all. And if you think his efforts aren't appreciated, you should see the expression on Pop Winters' face as he proudly watches the kid banging away at "their" hobby.

Talking it over, Horace Winters, left, and son David discuss their gear ratio selection before run at Bonneville. Both are active members of new Sacramento Valley Timing Assn.

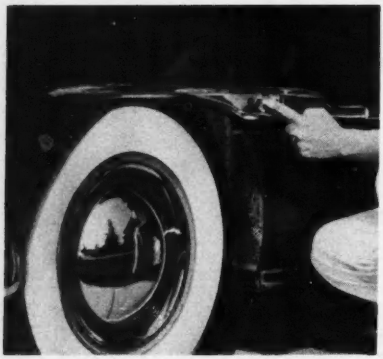
"GRAB BAG"

HOW many times have you had the strange experience of reaching for the door handle on a custom only to find that there just isn't any? Then to add to the confusion, you look around and can't even find the location of the electrical push button. This is the situation that "Grab Bag" deals with this month. Here are four pages on popular types of push buttons used, how they are installed and some of the cagiest hiding places we have ever come across.

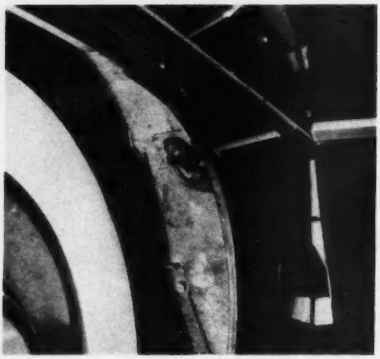
ONE TERMINAL PUSH BUTTONS

Cowl or windshield moulding is frequently used. Here, windshield wiper hides button.

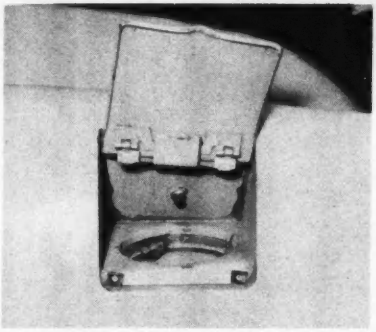
Favorite concealment trick is to install the push button underneath spotlight fold.



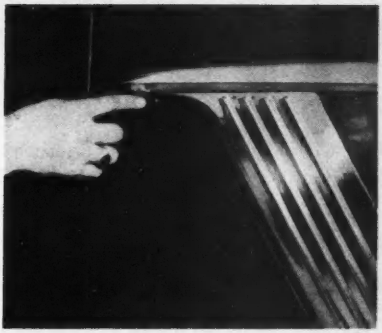
Most popular of all is the side trim installation. Here, accessibility is a big factor.



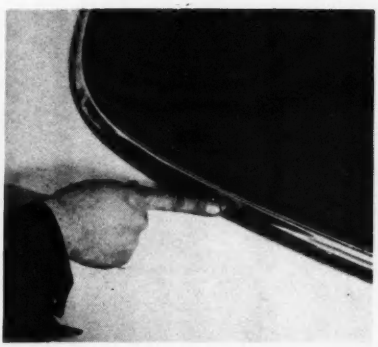
What were we saying about hide-a-way places? Here button is inside fender well.



What could be more of a biding place than to place button inside of gas cover flap.

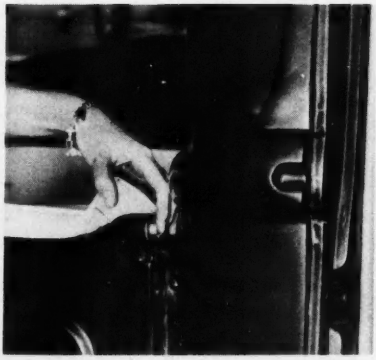


Many install the push buttons just underneath the side trim, rather than in it.

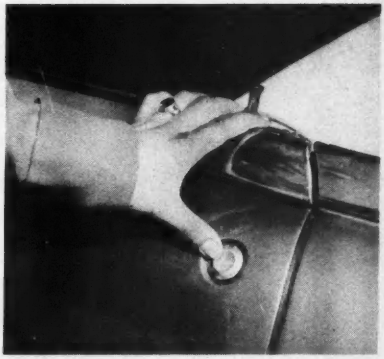


Favorite for convertibles is to place button among the top snaps in trim moulding.

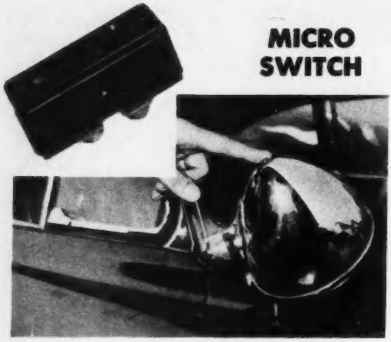
Another spotlight installation is to position the button just inside of the light.



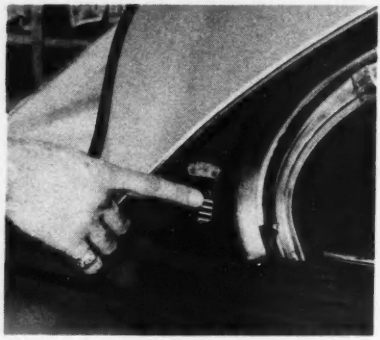
A unique place for pickups is to install the push button unit in top roll of bed.



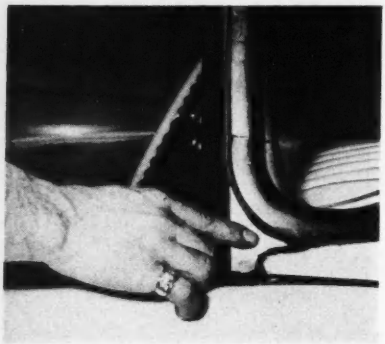
'42 Lincoln buttons and latches can be installed instead of electric buttons with ease.



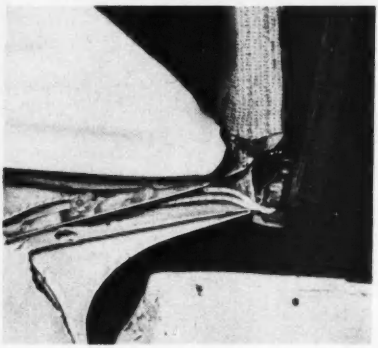
Micro switches are the ultimate for obscurity. Here, switch is inside of spotlight.



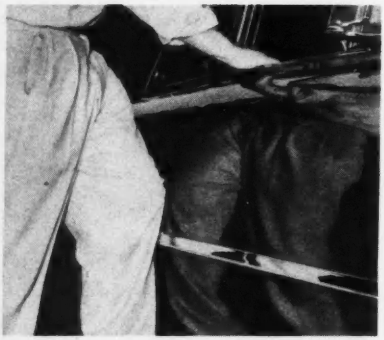
Micro switch is installed inside of body panel, by pushing on crest switch is actuated.



Special panel incorporated below windshield is pushed to make contact with the switch.



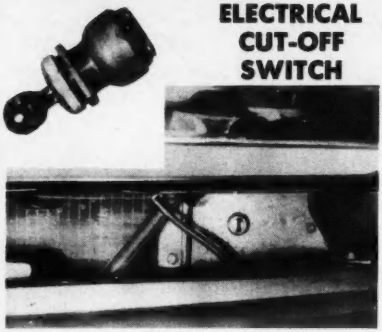
Here you see the panel exposed, showing the installation of the small micro switch.



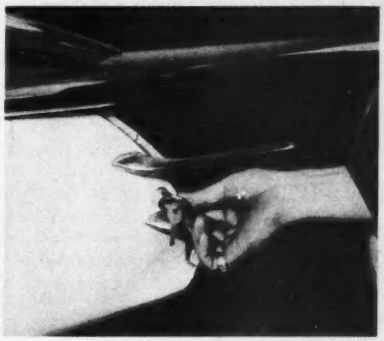
Favorite installation of the micro switch is to install it inside body quarter panel.

By pushing quarter panel in with knee, contact is made with the inside-mounted switch.

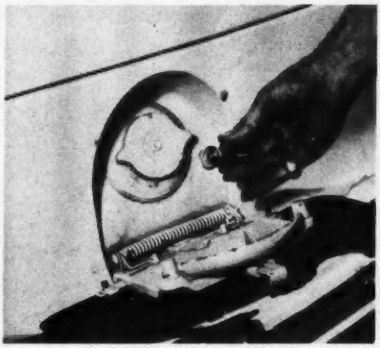
ELECTRICAL CUT-OFF SWITCH



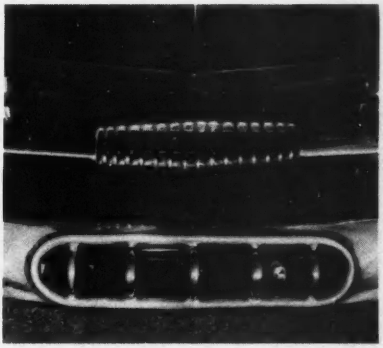
Electric cut-off switches are usually well concealed. This switch is in rear of grille.



Novel installation is this one with switch incorporated into the rear fender airscoop.

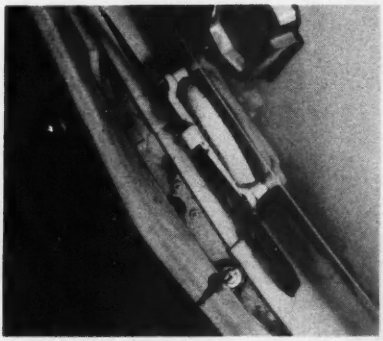


Unique arrangement for late Fords is to place it in tunneled gas filler section.



Another front end position is this installation in the cut-away section of bumper.

Here is a cut-off switch installed far back into the grille on the inner body panel.

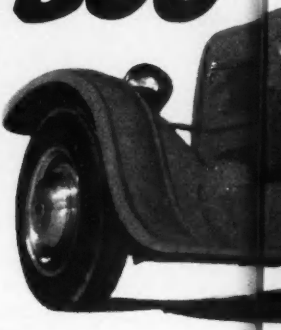


Unit is very obscure when placed in this position, between bumper and splash pan.

CONTINUED ON PAGE 63

DE BACKER'S ROAD BUG

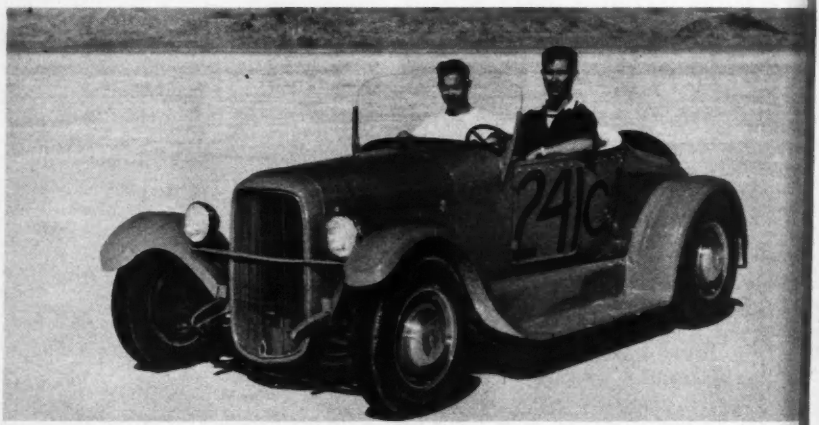
By Ray Brock



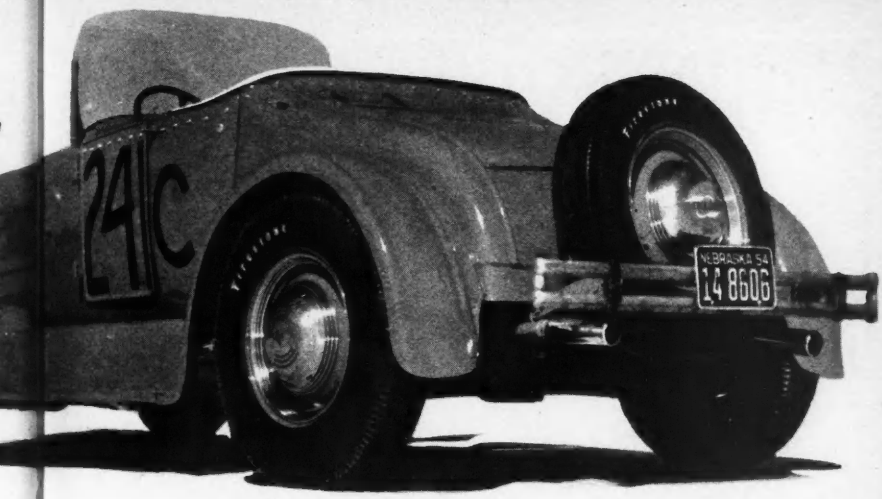
ALL THAT was needed to get Mickey De Backer started on this '27 "T" roadster was $15 to purchase the body. Mickey spent three years racing roadsters and setting records on half-mile tracks in the Hastings, Nebraska area before he started building his latest creation; a good, reliable street roadster which could be used in both foul weather and fair. With a previous background of building four V8 powered hot rods, and the assistance of Tom Roth, time and additional money brought these results.

Although low, road hugging in appearance and only 44 inches high at the cowl, minimum road clearance is still an ample six inches. 1941 Ford hydraulic brakes were fitted to a dropped front axle and an "A" rear axle with '41 Ford radius rods used both front and rear. Monroe tubular shocks were installed to control body movement.

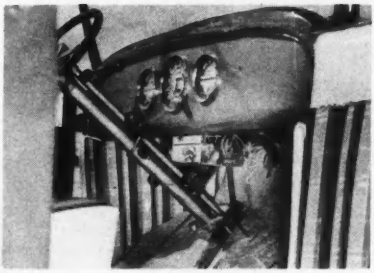
A '48 Merc block was bored .030 over stock, ported, relieved and refitted with stock valves. The crank is stock Merc and the cam is a mild Weber regrind. A pair of Offenhauser heads, an Edelbrock dual intake manifold, two Stromberg 97's and a Harman & Collins dual coil ignition complete the engine equipment. Results: 101.01 mph at Bonneville with full fenders.



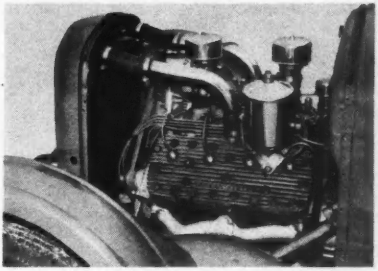
After being driven from Nebraska to the '54 Bonneville meet, windshield and spare tire were the only items removed to put De Backer's roadster in racing trim. Model "A" frame rails are modified and a '27 "T" roadster body dropped over '30 "A" suspension. The radius of the '27 Ford rear fenders had to be increased nine inches and front fenders were raised to provide wheel clearance. Running boards complete car for all weather street use.



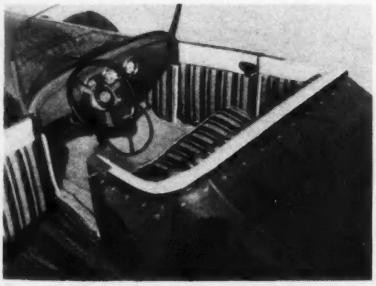
Photos by E. Rickman



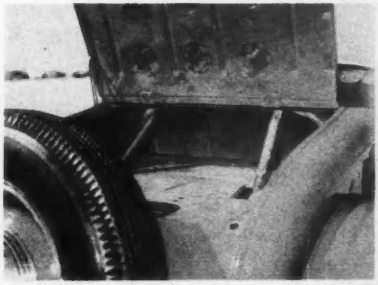
Dash panel has only necessary instruments grouped neatly. Column shift is '41 Ford. Clutch, brake pedals hang behind dash.



Conservative modification of '48 Merc engine provided top speed of 101.01 at Bonneville but retains reliability for street driving.



Inside panels and seats are covered with plastic material matching flamingo body paint. Windshield top edge ground to shape.



Well braced roll bar made from heavy wall tubing is a permanent installation concealed behind seat. Battery is under plywood deck.

BOLT-ON EQUIPMENT:

SAFETY BELTS

A-14 Los Angeles Herald & Express Thursday, December

Car Hits Tree

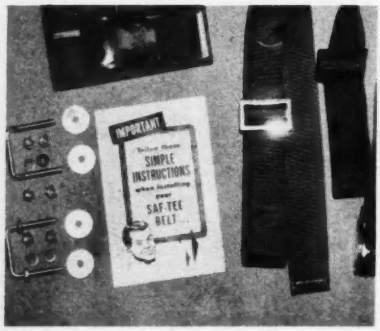
Find Safety Belt Unused After Crash in El Monte

A car equipped with airplane type safety belts crashed into a tree early today, killing one person because his safety belt was not connected, highway patrolmen reported.

AND HOW TO INSTALL THEM

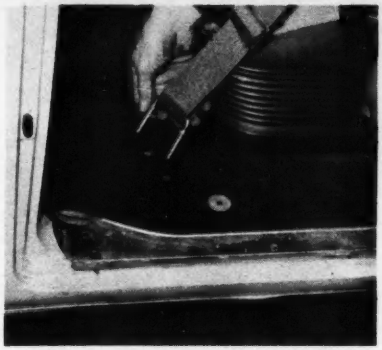
Photo Story by Ray Brock

A RECENT forum of safety engineers found seven major ways of changing the modern automobile to give increased passenger protection. Near the top of the list was the use of passenger safety belts. One fallacy concerning seat belts is that they are uncomfortable to use. Actually, after using them a few times, it becomes automatic for you to fasten them as soon as you get into the car. It's not long before you feel lost without them. The manufacturer of *Impact Safety Belts*, Ray Brown Automotive at 5656 Santa Monica Blvd., in Los Angeles, points to the fact that some police departments in the country have been using safety belts in their patrol cars for years. Take a tip from the men who see how bad accidents can be. Use those belts and you won't become part of a news story like the above clipping.



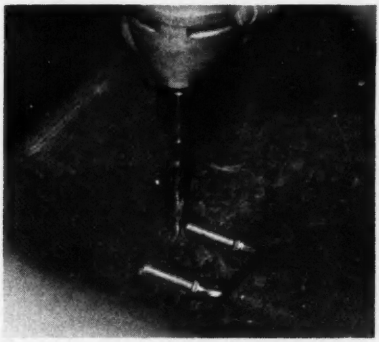
Impact Saf-Tee Belt kit has nylon webbing, chromed buckles, U-bolts and instructions

After checking beneath car for correct location, holes are drilled for U-bolts.

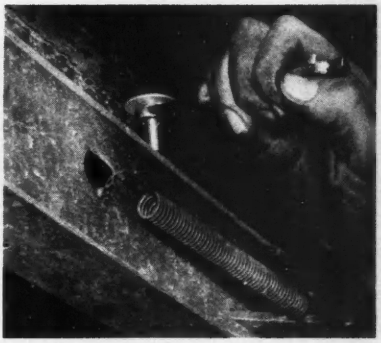


Belt is looped over U-bolt and inserted into holes. Bolts should anchor to frame member.

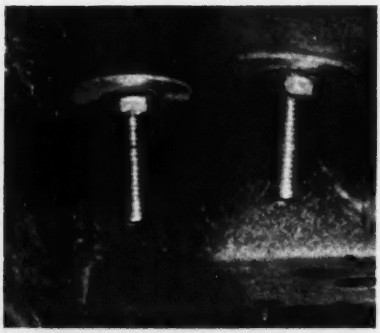
Belt passes between cushion and folding seat back. Does not hamper operation of seat.



Installation of belt in center of car is done in same manner as the outside belts.



U-bolt straddles frame I-beam and is bolted through flange. This makes ideal installation.



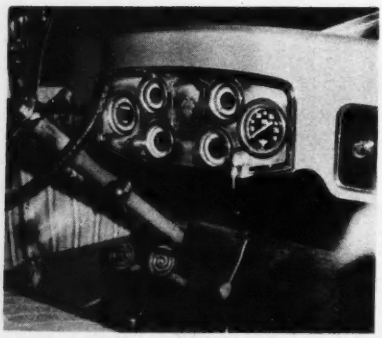
Large flat washers often used when frame is not near. Bracket welded to frame is better.

Nylon belts of color to match upholstery make an attractive addition to any car.

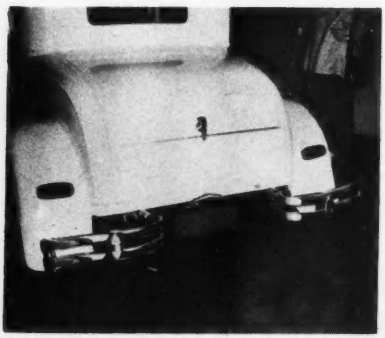
'A' FOR EFFORT

WHEN we spotted Dick Marchant's Sarasota green coupe at the Oakland National Roadster show, we left a technical data sheet on the seat for him to fill out. Under the section titled "Special Problems," we received this answer—"Any problems? Money!—that's why all the work was done by me." Dick is just one of thousands who has proven the old adage about doing it yourself if you want it done the right way.

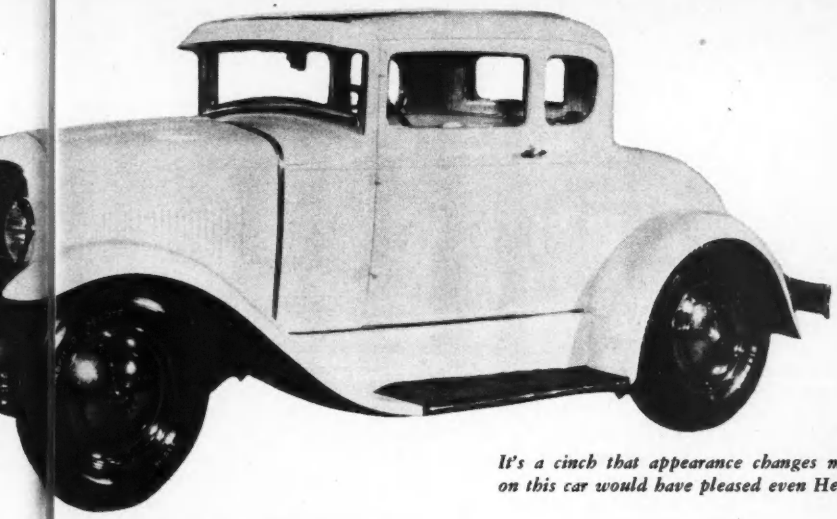
Step number one was to rework the chassis: '41 Ford hydraulic brakes, drop axle, '34 steering and 16 inch wheels. Next, a 3½ inch chop job to improve looks along with a '32 grille and louvered hood. Dick then added the crowning touches via a green and cream leatherette upholstery job to match the aforementioned paint job which actually is a green-tinged white. The finished product is certainly a good example of one man's ability and makes you wonder who it was that said the old model "A" was passé.



Custom dash has been fitted with panel from 1933 Packard. Tachometer replaces clock.

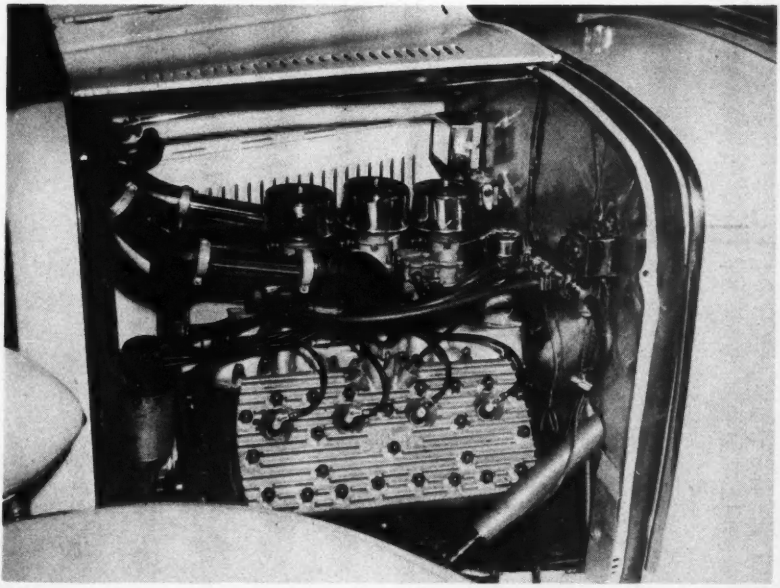


Chromed stock "A" bumpers coupled with '41 Chevy taillights give simple, clean look.



It's a cinch that appearance changes made on this car would have pleased even Henry.

Photos by Eric Rickman



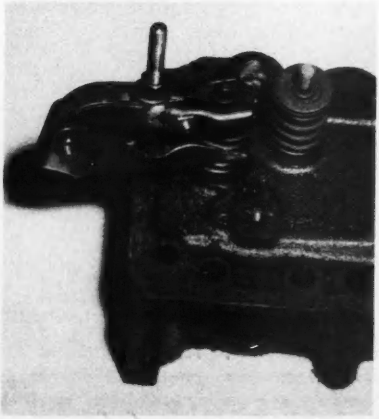
Uncluttered engine compartment houses 286 cubic inch Merc. Block has been completely worked over including bore, ports and relief. Engle cam, Vertex mag, etc. add horsepower.

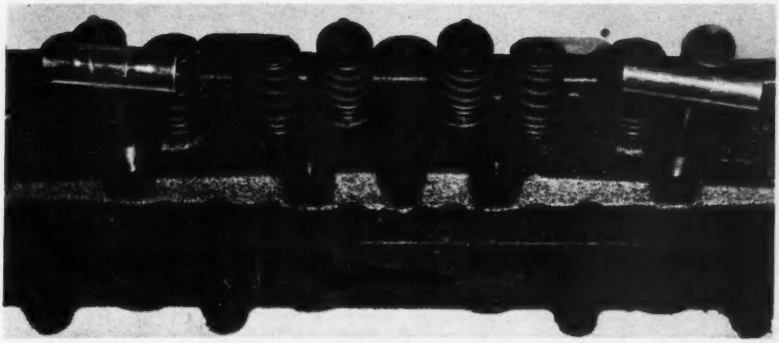
Garage Gimmicks

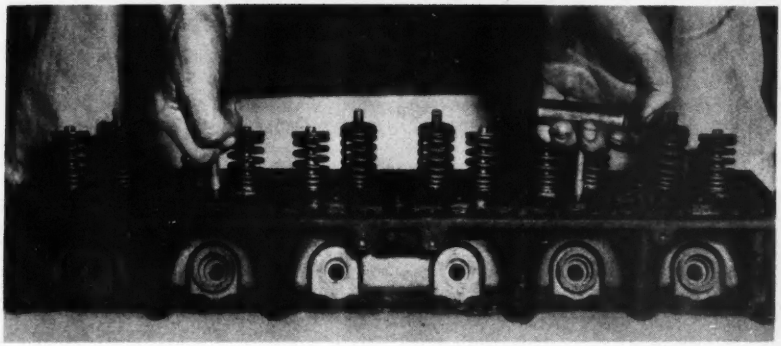
Did you ever hear the old proverb about necessity being the mother of invention? Without a doubt, this is one of the oldest and most often quoted of them all but it still holds true. For example, Claude Woody of Whittier, California, needed a valve spring compressor which could be used to change springs on OHV-engined cars without pulling the heads. The tool which he devised was made from a pair of old spring compressors. The spring cup arm from each of the old compressors was cut off about six inches from the end. A stove bolt was used to hinge them together with the cups facing each other and holes were drilled in each arm half way between the hinge and the cup for a 3/8 inch bolt to pass through. With a long bolt between the arms, a hex nut can be tightened down to draw the arms together and compress the spring. With the tool forced onto the spring, just tighten the 3/8 nut, tap keeper washer lightly with a hammer and remove the locks.

Before removing the spring from the valve, though, make sure that the piston is up to prevent the loosened valve from dropping into the cylinder. Even with the piston up, valve stems on some engines will drop below the top of the guide. If this happens, a screwdriver or bent piece of welding rod may have to be used to hold the valve up.

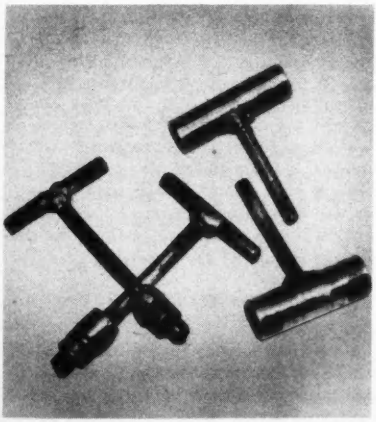
VALVE SPRING COMPRESSOR







HEAD "T" HANDLES



The same guy who showed us the handy little spring compressor, Claude Woody, also tossed in a couple of hints on how to make a pair of handles that can be used to get better grips on a head. These are particularly useful when working on hot engines, breaking loose hard to remove heads or pulling a heavy head assembly such as Chevrolet from a car. Handles for Chevy can be made by using a pair of long ⅜ NC studs which are each welded to a piece of tubing or rod to form a pair of "T" handles. These handles, screwed into two rocker stand holes, make effective grips for lifting. The same setup is used for any of the flathead engines except that the "T" handle is welded into an old spark plug with the porcelain removed. This gives the correct thread so that the handles may be screwed into any two plug holes.

"What's Your

(EDITOR'S NOTE):

Lately we have noticed a definite sag in Chuck Eddy's mail pouch. So much, in fact, that we have decided to unload a lot of it into the magazine. The letters are comprised of interesting questions; ones, that from a technical standpoint would benefit all, instead of just the person who's asking. From now on "What's Your Problem?" will be a steady feature for those of you who might have questions for Chuck on stories that he has written or maybe you just want some plain technical dope—Chuck says he's willing, so don't be bashful—step right up.

SUPERFLUOUS LINKAGE

Dear Chuck:

I'm a great admirer of your wonderful articles and I thought you might give me and my Dad a little help on a big problem.

I have a '52 Ford Tudor Sedan and access to either a '54 or '55 Lincoln block. I would like to know what would have to be done to install the '55. I have to pay for the block, so won't have it put in for a while.

I want to use an adaptor to a standard '52 Ford transmission and I understand there is a connection between the transmission and the carb that gives the engine more gas when you push the gas pedal down so far that you automatically shift into third gear (on the Lincoln, that is). I won't have any use for that with the Ford transmission and don't know what to do with it.

If you don't have this information, would you please tell me where I'm likely to get it.

Thanks,
Sonny
Ft. Worth, Tex.

If you are going to use either the '54 or '55 engine, by all means use the '55 Lincoln. There are several sources for engine to transmission adaptors.

Discard the linkage you mention, it is intended to vary throttle pressures and produce kickdown within the auto trans control system. It has no purpose on a standard transmission. Suggest you read all the dope you can find on Engine Swaps as you haven't asked about the most difficult parts of the changeover, oil pan, steering gear, front suspension and engine mounts. Our preference on transmissions runs to a little more beefy item than the '52 Ford Std. The last series Std. Lincoln box would stand the gaff, as would also a junk Cad '37-'50 or Packard Super '39-'47. Read our article "Big Gears for Big Engines," Jan '55 CCM

FRONT AXLE CHANGEOVER

Dear Chuck:

I have a '38 Chev coupe in which I'm installing a '54 Buick Special V8 engine bored out to 298 cubic inches with a Ford transmission and a Halibrand quick-change rear end. I would like to know your idea of installing a front end assembly. I have a ¾ ton GMC or a Plymouth tubular axle. I wonder if you would drop me a line telling me which you think I should use and how. Thank you.

Sincerely
Robert Smith
Johnstown, N.Y.

I would use the Plymouth tubular with '36 Ford truck spindles, or the regular Plymouth spindles if magnifluxed. *Front springs on Chev, if semi-elliptic, should adapt to hangers on Plymouth. You might also adapt a pre-'49 Ford front axle stabilizer to take the side thrusts off the front axle.*

INCREASED PICKUP IN '54 FORD

Dear Chuck:

I read your article "Fordomatic Urge" and decided to have our automatic transmission tightened up. However on taking your article to two different Fordomatic mechanics I

Problem?"

By CHUCK EDDY

learned that it would help only '51, '52 and '53's. (We so happen to have a '54 Country Sedan station wagon, with Fordomatic.) They told me that most of your features had already been introduced into the '54's. They also told me that it would run $50.00 to tear the transmission apart alone. All in all they said it would run around $75.00. I was informed that on the '54 the pickup would not be increased much at all.

However, even after all the disheartening facts I still believe that the '54 likewise can be tightened up by some other means. If the automatic can't be tightened without doing damage to the engine or transmission or with little change in pickup, I wish you would inform me.

Sincerely,
Fred Drummond
St. Louis 10, Mo.

The '54 Model Fordomatic has been improved considerably over the early models, but there are still two major changes which will help improve their performance: 1) Use the '54 Merc front Servo parts and 2) Use the '55 Ford front band. This change should cost approximately $37.50. No great change in pickup will be noticed even with these changes unless a change is also made in the powerplant itself. One simple and effective way to give hp increase would be to install a dual exhaust system. Also, check April '54 and March '55 CAR CRAFT issues detailing engine modifications which, with the modified Fordomatic transmission, should give you the performance increase which you desire.

1952 CHRYSLER ALTERATIONS

Dear Chuck:

I have a '52 Chrysler Saratoga Club coupe and am thinking seriously of souping it up the simplest way possible, as I am no mechanic. I have heard that a 1954 Chrysler 4 barrel carburetor and manifold will fit on my '52. Can you tell me how much of a job it would be to make this change? I have already had a dual exhaust system installed and it seems to have improved the performance somewhat, but the mileage I'm getting is still not too good.

I do quite a bit of country driving with my car and I also have wondered about a gear change in the rear axle.

Wish you would write more articles on Chrysler cars.

Sincerely,
Don Hammel
Royal Oak, Mich.

There is a big problem to face when you try to install the four-barrel manifold on the '52 engine. '54 manifold passages are much larger than the '52 head ports so a substantial ledge will project into the intake air stream and seriously affect efficiency. There is not enough meat in the early heads to allow them to be ported to match the manifold but it is possible to bevel the port edges slightly to match the manifold.

A fair horsepower increase should be given with this arrangement but the best move (also more expensive) would be to install the '54 heads too. Not only would this eliminate the problem of trying to match the ports to the manifold, but you would also gain the much larger head ports and valves. Should you choose this step, you will also have to use the late exhaust manifolds as the '54 exhaust ports are much larger than those in the earlier heads.

Check with your Chrysler dealer for a list of the gear ratios he has available. As you do a large amount of country driving, you should be able to use a more efficient differential gear ratio. If you do install the '54 heads, and/or manifold, you should have enough horsepower to pull a pretty high gear.

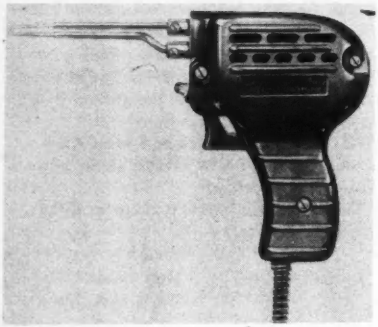
SHOPPING AROUND

(*Continued from page 9*)

the Coil Spring Stabilizer should correct the condition. Installation is so simple it can be done while car is being lubricated.

QUICK-HOT SOLDERING GUN

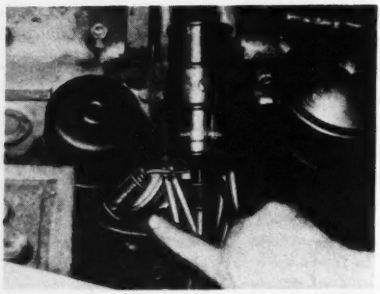
NEVER before an electric soldering gun so light, handy and efficient or that sells for so low a price as this new patented WEN Mod-



el #199 "Quick-Hot" Electronic Soldering Gun. Working hot in 2½ seconds. Weighs only 1½ lbs. Has new type extra long reach, lifetime tips. Ideal for home soldering, service crews, etc. Works on 110-120 Volt A.C.—1.1 Amp. Retails $7.95 and fully guaranteed by Wen Products, Inc., 5808 Northwest Highway, Chicago 31, Illinois.

AUTO-LITE POINT GUARD

FEWER starting failures on cold mornings are assured by a device to prolong the life



of the contacts in an automotive distributor. Manufactured by Auto-Lite (The Electric Auto-Lite Company, Toledo 1, Ohio), and distributed throughout the country; the device is known simply as a "Point Guard." Easy to install, it prolongs the life of points by limiting the current flowing through the primary circuit of the ignition system between coil and distributor. By so doing, it practically eliminates oxidation (blue points) and ultimate deterioration of the points caused by high currents when the engine is first started. The Point Guard is a special unit which changes its resistance according to the amount of current flowing through it. It is contained in a two-inch bakelite cover with a terminal at one end and a four-inch wire at the other. It is installed in the ignition circuit. Since the copper wire in the ignition coil offers its lowest electrical resistance when cold—which is when the damage is done the distributor points—the Auto-Lite Point Guard is most effective on those chilly wintry mornings when starting failures are common.

BELL "500" HELMET

THE NEW Bell "500" Helmet will give maximum protection all over your head—not just on top. Features are as follows:

Fiberglas shell, one piece molded *foam plastic* liner, quick detachable visor, easy adjustment for personalized fit, and quick release adjustable chin strap. Sizes 6¾ to 7⅝. Specify size when ordering from Bell Auto Parts, Inc., 3633 Gage Ave., Bell 1, Calif. Price $36.50.

"Louvers-Smouvers" **HONKER** by Dick Day

FORCED AIR HEAT

(*Continued from page 15*)

jective until simpler setups develop his savvy to work out some of the design problems.

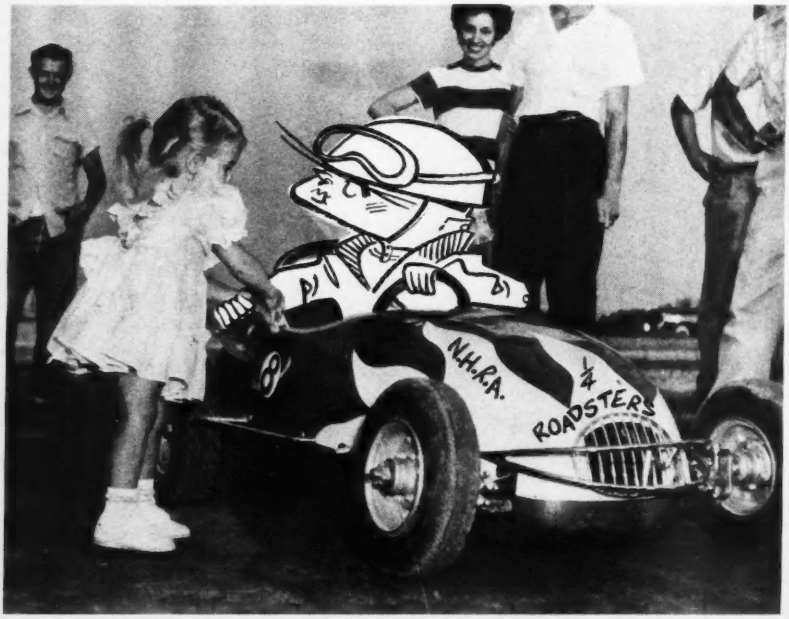
Carburetor Sizes

Surprisingly, we found some current difficulty with mixtures on blown jobs. Usually the pattern runs like this: a fine running job at lower speeds, but when you "stand on it" she runs lean, detonates, and gets a bad case of piston termites, if the speed is sustained. In about 50% of the cases we talked to where detonation existed, the installation was not a homemade adaptation, but a complete kit. This trouble does not speak well for either the carburetor size and mixture or the ignition advance characteristics. The selection of the proper size carburetor is straight forward but not obvious. It works something like this: the engine's ability to consume mixture has been increased so that it behaves at the *upper* end as though it was a proportionally larger unblown job. Fine, but how much bigger? Joe Blow doesn't know, so he sticks maybe two carbs on where one grew before. Now, if he's been very lucky, the mixture is O.K. on the top end, but he gets such a decreased air flow on the lower end of the range that the pots don't carburete consistently. The answer is a compromise that must be made with several factors kept in mind. For our street job, which must have flexibility, one solution would be a carburetor of about 1½ times the *flow* capacity of the original. Now, air flow is based on the breathing rate of the engine at somewhere near its rpm for maximum hp. One carburetor manufacturer, Zenith, furnishes flow data on all its models and the selection of a single carb to do the job would be somewhat easier.

(*Continued on page 64*)

LIL' BEEP

By Dick Day

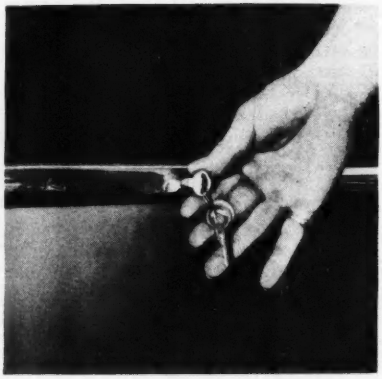


*"Come on, Baby, let's dispense with the formalities—and make with th' **MUGGING** bit!"*

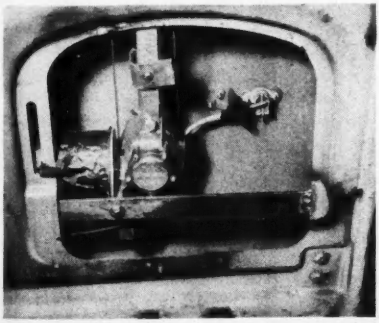
GRAB BAG

(*Continued from page 49*)

PUSH BUTTON KEYLOCK



The push-button key lock is positioned much like previous single terminal push-button



When positioned in the exterior side trim, the exposed inner mechanism looks like this.

NEXT MONTH

watch for:

FRENCHING FORD TAILLIGHT RIMS

PT. II, SOUPING '55 FORD & MERC.

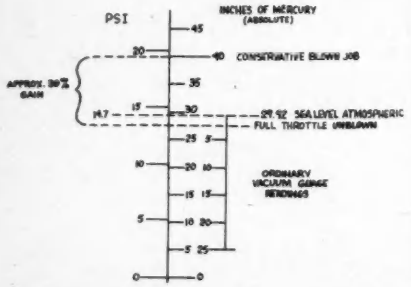
PT. II, BUILDING A CUSTOM

FORCED AIR HEAT

(Continued from page 62)

The usual solution we have noticed is to install two of the same carburetors that were used and re-jet them by trial till the rig seems to run best. If an electric mixture analyzer is available, or if the testing is done on a dynamometer, the carb calibration can be accurately done. The recalibration of carburetion with adequate venturi areas would usually amount to a juggling of main metering and power enrichment until the rig showed economical mixtures at part throttle and adequately rich power mixtures near the full throttle range.

The deeper the problem is investigated however, the closer you will come to the conclusion that the problem is better solved by compound carburetion. This is simply the practice of using fewer venturii at lower speeds to maintain efficient carburetion and introducing more venturi area for maximum outputs. We simply are suggesting that a logical substitute for the multiple carburetors and their associated linkage and plumbing problems would be a single four-throat carb of adequate capacity. Jet calibration as explained above would then be simplified and detonation due to lean mixtures avoided.



As the flow rate of a blower becomes more than a little complicated, let's resort to some simple physics. Some wise one figured long ago that the *volume* of a gas varies with its *absolute pressure*. Temperature comes into it, too, but let's ignore it for a little while. As atmospheric pressure at sea level is about 30 inches of mercury or 14.7 psi, a manifold pressure gauge would usually indicate some pressure less than this, even at full throttle. Properly carbureted unblown engines will still indicate about 1½ to 2 inches of mercury less than atmospheric at *full throttle*. Our conservatively blown job should indicate about 3 to 5 psi *above* atmospheric at full bore. 40 inches of mercury or 20 psi pressure would then indicate a gain in volume of air breathed by the engine at about 30%. Therefore, for our street car, the size carburetor venturi actually adequate to do the job would be about 35 to 40% larger, figuring that the blown job would also peak out at a higher rpm than the unblown version. For example, if our flathead eight used a dual throat carb with 1 inch venturi, its throat area would be πr^2 or 3.14 x $(\frac{1}{2})^2$ x 2 (throats) or 3.14 x .5 or 1.57 sq. inches. Increase the throat *area* by 40% and you get 2.20 inches for the *blown job*. Remember, we are not increasing the throat or venturi diameter by 40% but only the *area* which increases by the square. We will go into this more next month when we figure how big we can go.

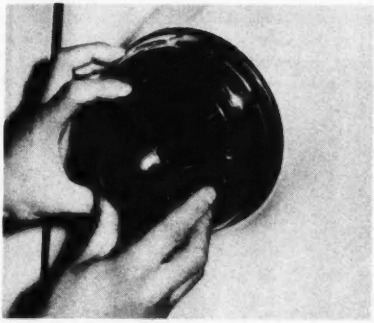
Air Cleaners, By All Means

For a regularly driven blown device, some means of screening the "rocks" out of the incoming air is a downright necessity. The same rule for size increase should be followed as that which applies to carburetion. Lowest restriction consistent with good filter ability is naturally desirable. The chief problem may crop up as an outgrowth of the carb problem on eight cylinder installations. As head room is not too ample with some late stock air cleaners, it is not helped by the addition of the charger. Some clever setups of this type utilize large flexible hose to a horizontally mounted air cleaner, located behind the grille and ahead of the radiator. Others run the tube to the fender ventilating air duct and use it as a source. Don't underestimate the power of dirt to wreck any of the positive displacement types of blower.

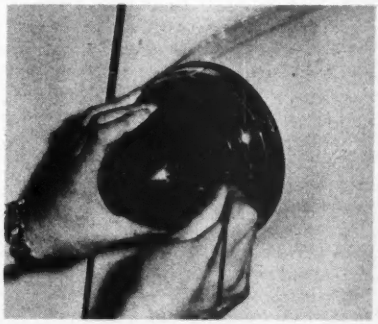
Lest this installment get completely out of hand, we will postpone our more detailed part of the story for the next time. We'll talk about boost—how much, fuel, instruments for checking the blower performance, and we hope to have some dyno results on some typical competition setups. See you then?

(*Continued from page 21*)

'54 OLDS 98 LENS FOR '53-'54 FORD

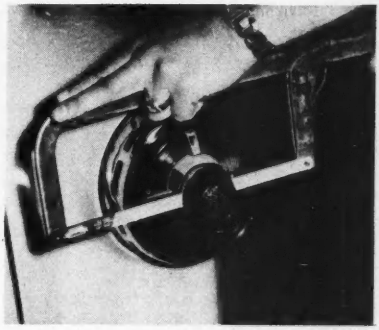


Align lens so that writing is horizontal.

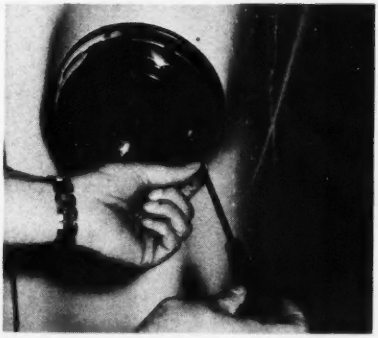


With lens still inserted, mark screw holes.

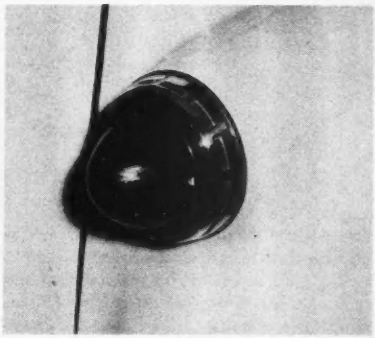
Drill 1/8" holes in stock lens for screws.



Center tip is cut off for more brilliancy.



Now very carefully screw lens to stock unit.



'54 lens gives a streamlined bullet shape.

LETTERS

(*Continued from page 7*)

sible cause except the difference in counterweighting of the 302 and 270 crankshafts.

The Packard transmission is as close to a heavy duty "natural" for a GMC or Chev as you can find. The spline is the same, although the shaft is about ⅛ inch longer than Chevrolet. A Chevrolet truck bell housing can be quite easily altered for the Packard transmission, and the front bearing retainer can be turned down to the inside diameter of the Chev throwout bearing. Anyone with machine shop facilities can readily make such a conversion.

The Chev rear end can be converted to open driveshaft operation quite easily, too.

I learned from a friend working in Detroit, that GMC had trouble with the 302 bearings in the developmental stages, and the final result was the heavier crank and the type 100 bearings.

I know at one time one of the "GMC experts" put out a bulletin warning against the use of 270 cranks in 302 blocks, with 302 pistons.

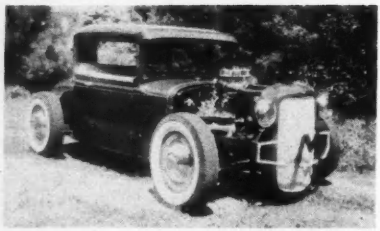
Thanks for reading through this, and I want to say you have the best car magazine going.

Sincerely,
Pfc Roy F. Powers
Ft. Bliss, Texas

MISSOURI "A"

Dear Sir:

Enclosed please find a picture of my "A" bone. It's a '30 Model A coupe with a '35 Ford frame shortened 47 inches and narrowed seven. It has a stock 59A engine, except for carbs. It's been channeled a conservative (?) 13 inches. All of the work has been done by me with the exception of paint, which is a metallic purple, done by Charlie Winkel. The usual items have been added for safety: sealed beams, safety glass and hydraulics. The transmission as well as suspension parts are from a '41 Ford except the "A" rear end.



I am quite proud of my Purple Bug as I won a 3rd place trophy at our Rod and Custom Motorama held here in St. Louis.

It would be a great honor to see my car in your magazine if at all possible.

Thanks for the terrific magazine—keep it up.

Jerry Montgomery
Affton, Missouri

Here 'tis.—Ed.

CHICAGO INDOOR RACING

Dear Sirs:

A recent article (Dec. '54) in your fine magazine has prompted the writing of this letter. It was with great joy that I rediscovered indoor racing. Last year it was my privilege to view what I think to be the outstanding example of indoor racing, namely the stock car race held in Chicago. Using modified Crosleys, fantastic speeds were reached (for an indoor event that is). The action on a short indoor track was frightening to see. Concrete retaining walls washed out car after car, with few injuries. Now it looks like Chicago's International Amphitheatre will see the return of stock car racing this year.

In Fort Wayne, Indiana promoter Bill Lipkey is going to have a special Crosley show on January 14. Also rumored are several dates at Milwaukee, Wis. and Toledo, Ohio. The West Suburban Racing Assn., an organization that races only Crosley stock cars, seems to be the only body involved in these programs. West Suburban is a local group and at this time I am attempting to determine who the officers are, mainly in order to get to see all the races they sanction. (I'm a nut on any type of racing but these 80 mile an hour Crosleys get me.) Crosleys have raced at all the local tracks but it seems that promoters do not realize the full potential of "The Mighty Hardtops" as they call themselves.

I would like to suggest that your magazine give coverage to these forthcoming indoor "stock" events.

Very truly yours,
Cy Hooper
Chicago 47, Illinois

Any other interested parties?—Ed.

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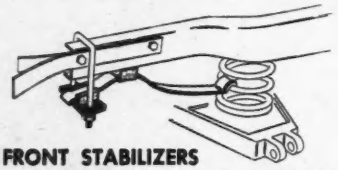

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The Hellwig knee-action front stabilizer stops excessive roll and sway on curves and greatly reduces pitch, bounce and bottoming. The units control tire squeal and wheel hop as well as nose diving when braking. The front end holds better alignment and tire mileage shows a definite improvement. Shock absorbers and front end parts take much less abuse. Hellwigs are completely adjustable to correct and raise weak, sagged coil springs back to the new car height. Require no lubrication, no alterations, no special tools for installation. Furnished with all parts and complete installation instructions.

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